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A STUDY OF THE IMPACT OF THE
AREA DEVELOPMENT AGENCY PROGRAM

IN

NOVA SCOTIA

BY

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FINAL REPORT

OF

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AREA DEVELOPMENT AGENCY

DEPARTMENT OF REGIONAL ECONOMIC EXPANSION

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CHAPTER I

INTRODUCTION

The present study was initiated by the Area Development Agency in the spring of 1967 to examine, in fairly general terms, the impact of the various A.D.A. incentives for the location of industry in designated areas of Nova Scotia since the inception of the program in 1963. A statement of work outlining the objectives of the study established two basic aims:

- 1) "To study in depth for each important industry the forward and backward linkages emanating from the manufacturing sector and to relate these linkages to geographic bases, comprised of designated areas, Provincial and major economic regions. The assessment of the secondary impact of the program shall take into account the economic activities generated indirectly via inputs and the wage bill and to link these activities to the geographic bases as stated above."
- 2) To undertake "the development of a methodology related to assessing the impact of the A.D.A. program as distinct from other causes of economic growth."

The necessity of interpreting these terms of reference and devising a methodology appropriate to the goals defined provides the initial concern of this report. We shall attempt to determine, briefly, the nature and goals of the Area Development Agency's program of incentives in Nova Scotia, to interpret more precisely the aims of this study in the light of this, and to outline the methodology to be employed in achieving these ends.

The Incentives Program

The philosophy governing the establishment of the Area Development Agency can be dealt with in much more detail elsewhere (cf. T. N. Brewis and G. Paquet, "Regional Development and Planning In Canada: An Exploratory Essay"¹). Whatever the intentions in the minds of the originators, the Agency soon eschewed any pretense to being a "development" agency, in the sense of undertaking a comprehensive development plan for the country as a whole or for any region within it, and opted for the narrower goal of encouraging industrial development to take place in areas of chronic and severe unemployment. This intention is spelled out quite clearly in the 1965 Report of the Department of Industry:

"The Area Development project, as operated by the Department of Industry, is essentially an extension of the national full employment policy of the federal government. In this context the elements of regionalism in the area development program are incidental to the main purpose."²

Beginning in 1963, financial assistance was made available to manufacturing and processing industries establishing or expanding in designated areas. The financial incentives consisted of: a) a three year exemption from federal and provincial income tax; and b) special capital cost allowances on new machinery, buildings

¹T. Brewis, G. Paquet, "Regional Development and Planning in Canada: An Exploratory Essay", A paper prepared for the June 1967 Meeting of the Canadian Political Science Association, Ottawa, June 9, 1967.

²Annual Report, Department of Industry, Ottawa, 1965, p. 18.

and significant expansions. Seven areas in Nova Scotia were designated for this assistance, the N.E.S. areas of Amherst, Inverness, Liverpool, Springhill, New Glasgow, Sydney and Sydney Mines, and the criteria of selection were high and persistent unemployment and a slow rate of economic growth. Under provisions of the Act, situations of very high unemployment for a short duration and situations of extreme employment dislocation also qualified an area for designation. In August, 1965, the program was altered in several ways. Capital grants to secondary industry establishing within the designated areas were added and the income tax exemption phased out to expire on March 31, 1967. The grants on a sliding scale are based on the size of the capital investment and apply to the expansion of existing facilities as well as the establishment of new ones. The criteria for designation were expanded to include a concept of income so that the present criteria stand as high unemployment and low income but no longer involve any appraisal of potential growth. In Nova Scotia this led to the inclusion of four more C.M.C. areas: Kentville, Bridgewater, Truro and Yarmouth, which meant that all Nova Scotia was now designated with the exception of the Halifax-Dartmouth C.M.C. area.¹

¹After 1965 the Agency also probed in the direction of co-operating with the provincial governments to assess manpower training needs and facilities, but nothing meaningful seems to have come of this in Nova Scotia.

An evaluation of the A.D.A. incentives program might take one of two paths: it could weigh the program in the light of the goals, however limited, it sets for itself; or it could weigh it in the light of the goals of an effective regional development policy. Evaluated in the second sense, the program has been subject to considerable criticism. Brewis and Paquet suggest it might be entitled more appropriately as an "Industrial Mislocation Agency" since payments are designed to overcome cost disadvantages in the designated areas to make it possible for firms to establish "economic" operations in a designated area in competition with manufacturing elsewhere.¹

It may be possible that a program of this sort which is appropriate to the needs of Central Canada as a means of relieving pockets of under full employment and retarded growth in an otherwise buoyant economy is quite inappropriate in Nova Scotia where under-full employment and retarded growth are the general characteristic and the buoyant sectors are confined to the pockets. Again the establishment of further industrial plants in the already concentrated industrial centers of Central Canada involves social costs which may be relieved by encouraging the dispersal of these units to less developed places. In Nova Scotia where similar degrees of concentration

¹T. Brewis and G. Paquet, op. cit., p. 40.

have not yet appeared, similar social costs of concentration are not apparent and social savings from dispersals are less apt to appear. Indeed, here the economic advantages of agglomeration have yet to be fully realized in the major industrial center (Halifax-Dartmouth) and a program which encourages dispersal at this stage may well serve to weaken the overall economy and by this result to retard the improvement in incomes and employment sought for in the areas designated for assistance. What is needed, the argument runs, is an overall development plan which recognizes the special needs of the region relative to other parts of the country rather than the disadvantages of localities within the region relative to other localities in the region, and which aims to foster the whole region by encouraging the location of industry in the "natural growth centers" where viable economic growth may be most apt to appear. To evaluate the program in the light of such a pure development criterion one would have to demonstrate either that an alternative program would have attracted firms with a better income-employment record and/or a better growth potential, or that the existing program has actually discouraged industry or resulted in the attraction of non-viable plants or inefficient location decisions. Empiric evidence for this would be difficult or impossible to obtain and, moreover, it now seems unnecessary: the logic of the case for a program integrated with some overall development plan has already been accepted by the new Department of Regional Economic Expansion into

which the Area Development Agency has been incorporated.

In this report the A.D.A. program is evaluated in terms of the goals the Agency has established for itself:

- 1) Improvement of income and employment levels in the designated areas in absolute terms and relative to the levels of the non-designated areas. This involves determining the direct economic effects in the assisted plants and determining the total economic impact by considering as well the linked employment and income effects resulting from forward and backward linkages in the relevant areas and the subsequent impacts on tertiary sectors.
- 2) Providing a program which can directly effect the investment and location decision of firms which may be induced to establish in the designated areas. This involves the development of procedures for estimating the "strength" and "importance" of the A.D.A. program in promoting investment decisions in the designated areas.

It should be emphasized that the aims of this report are modest. The concepts underlying the incentives program of the Area Development Agency are viewed here as basically welfare oriented rather than development oriented. The program has been designed to encourage industrial development in areas of chronic unemployment and low income, and not to provide a comprehensive program of regional development. The intent of this report is to consider the degree to which the program has achieved or contributed to these welfare goals, and not to make a critical analysis of the program as an agent of development.

Methodology and Scope

This report presents an analysis of the impact of the A.D.A. incentives program on the level investment, employment and incomes in the Province of Nova Scotia over the period from the inception of the A.D.A. program in 1963 to the end of 1967, with some projections to 1970. Information is drawn from four sources:

1. The A.D.A. group sample, i.e. the results of a survey of firms in the designated areas of Nova Scotia who have either received assistance through the A.D.A. program or are classified as active applicants for such assistance during the survey period.
2. The control group sample, i.e. the results of a similar survey of manufacturing firms in the designated areas of Nova Scotia which have either established or undergone significant expansions during the survey period, but are not recipients of or active applicants for A.D.A. assistance.
3. Reconciliation data, i.e. generalized data received directly from the Area Development Agency--most of it late in the study period--which must be reconciled with the survey data or which supplements it.
4. Other government sources, e.g. materials from the Atlantic Development Board, the Nova Scotia Department of Trade and Industry, the Nova Scotia Department of Labour.

The first part of the study is concerned with estimates and measures of the A.D.A. impact on investment, employment and incomes. The most sophisticated techniques for this type of investigation would probably include the use of intraregional and intersectoral input-output analysis, but this does not appear feasible for the present study due to time and staff limitations and the scattered nature of the data. Some advantages are taken of the A.D.B.'s input-output data,

particularly for multiplier estimates, but on the whole a more immediately pragmatic approach is employed which relies on the survey undertaken for direct and linked effects. The basic measurement equations defining the methodology employed are as follows:

$$\text{Capital Investment-- } K_i = C_i + \sum_{j=1}^n C_{ij} + \left[\sum_{k=1}^m C_{ik} + \sum_{j=1}^n \sum_{k=1}^m C_{ijk} \right] \quad (\text{Equation 1.1})$$

where: i = first order plant receiving assistance through the ADA program;

$j = 1, 2, 3, \dots, n$, second order plants having capital investment induced by backward and forward linkages with i th first order plant;

$k = 1, 2, 3, \dots, m$, plants experiencing capital investments induced from final demand sector results of investments in i and j plants;

K_i = net overall investment effects of ADA induced investment from establishment of the i th plant;

C_i = net direct induced investment in i th first order plant;

C_{ij} = net indirect investments induced from i plant in j second order plants;

$\left[\sum_{k=1}^m C_{ik} + \sum_{j=1}^n \sum_{k=1}^m C_{ijk} \right]$ = net indirect investment induced through final demand impact of incomes created in i and j plants.

In this study only C_i is estimated; and for all of Nova Scotia:

$$C = \sum_{i=1}^n C_i \quad (\text{Equation 1.2})$$

The data is subdivided for CMC districts and SIC categories and the SIC categories are examined to compare the assisted categories with

those showing the greatest potential for growth in the Canadian economy. Similar evidence for the control group firms is considered and comparisons made between the two groups. These measures must be derived entirely from the survey sample data and must be reconciled with the overall investment data provided by the Area Development Agency.

Employment Section--

$$N_i = E_i + \sum_{j=1}^n E_{ij} + \left[\sum_{k=1}^m E_{ik} + \sum_{j=1}^n \sum_{k=1}^m E_{ijk} \right] \quad (\text{Equation 2.1})$$

where: i, j and k are first order, second order and final demand effects, as above:

N_i = total net employment effect induced from ADA assistance to ith plant;

E_i = net direct employment induced in i first order plant;

E_{ij} = net indirect employment induced from ith plant in j second order plants;

$\left[\sum_{k=1}^m E_{ik} + \sum_{j=1}^n \sum_{k=1}^m E_{ijk} \right]$ = net indirect employment induced through final demand impact of incomes created through net employment induced in i and j plants.

The sum of net employment effects for all Nova Scotia is:

$$N = \sum_{i=1}^n N_i \quad (\text{Equation 2.2})$$

An employment multiplier is calculated of the form:

$$N = \alpha \left(\sum_{i=1}^n E_i \right) \quad (\text{Equation 2.3})$$

The employment data is also subdivided for CMC districts and SIC categories and qualitative changes in the work force are estimated. Similar evidence for employment effects in the control group is considered and comparisons made between the two groups. The basic information is from the survey sample data and this must be reconciled with employment data provided by the Area Development Agency and the Nova Scotia government.

Incomes Section--

$$Y_i = I_i + \sum_{j=1}^n I_{ij} + \left[\sum_{k=1}^m I_{ik} + \sum_{j=1}^n \sum_{k=1}^m I_{ijk} \right] \quad (\text{Equation 3.1})$$

where: i , j and k are first order, second order and final demand effects as above;

Y_i = total net income effect induced from ADA assistance to i th plant;;

I_i = net direct income effect (in wages) induced in i th first order plant;

I_{ij} = net indirect income induced from i th plant in j second order plants;

$\left[\sum_{k=1}^m I_{ik} + \sum_{j=1}^n \sum_{k=1}^m I_{ijk} \right]$ = net indirect income induced through final demand impact of incomes induced in i and j plants.

The sum of net income effects for all Nova Scotia is:

$$Y = \sum_{i=1}^n Y_i \quad (\text{Equation 3.2})$$

An income multiplier is proposed of the form:

$$Y = b \left(\sum_{i=1}^n I_i \right) \quad (\text{Equation 3.3})$$

Income effects in CMC districts and SIC categories are calculated. Similar evidence for income effects in the control group is considered and compared with that of the ADA survey group. No convenient reconciliation data is available for income effects.

The second part of the study evaluates the ADA incentives program through measures of the importance and strength¹ of the program. The "importance" of the ADA program refers to the size of the results achieved by those plants, or those parts of the economy, which have been the recipients of ADA assistance. In this sense it is assumed that all the results achieved have been the results of the specified assistance and evaluation of the program consists of measuring these results against some criteria of satisfactory achievement.

Four such measures of "importance" are suggested, to be used as data permits:

(1) Net effect (income and/or employment) of assistance to plants in the specified area relative to the total net change (income and/or employment) within the specified area. "Importance" of ADA assistance would increase as the ratio approaches unity.

(2) Net effect (income and/or employment) or assistance to plants in the specified area relative to the "need of the community" in the specified area.

"Need of the community" would be a measure of the amount by which incomes or employment in the specified area fall short of the level necessary to remove the community from designated status.

"Importance" would increase as the ratio approaches unity.

¹The concepts of "importance" and "strength" are taken from A. D. Hirschman, "The Strategy of Economic Development" (New Haven, 1958), pp. 100-101.

(3) Net effect of assistance (income and/or employment) to those manufacturing concerns least apt to contribute to rises in income and employment, relative to net assistance to those most apt to contribute to rises in income and employment. The division of plants into the two groups would be on the basis of criteria for the definition of growth industries.

"Importance" would increase as the ratio approaches zero.

(4) Ratio of cost to benefit, i.e. total dollar cost of ADA assistance relative to the total net change in incomes and/or employment achieved in the specified area. The cost per dollar of income created, or per job created would be derived.

The strength of the ADA program as a cause of the effects on income and employment that flow from the establishment of ADA assisted plants may be estimated in terms of the "probability" that these firms have come or will come into existence as a result of ADA assistance. This can be taken to imply two considerations:

--The significance of ADA assistance in the investment motivation of the first order plants.

--The degree of stimulus set up for backward and forward linkage effects on second order plants.

1) For the investment motivation of first order plants, two types of information were sought:

a) Informed judgement concerning the significance of ADA assistance for the investment decision. This required direct questions respecting the principle factors influencing the decision to invest at the present location with some designation of the relative importance of these factors; and a direct query concerning: i) would the investment have been made in the absense of ADA assistance; and ii) would the investment have been made at this location in the absense of ADA assistance.

b) Quantitative data concerning the value of ADA assistance relative to other forms of government assistance offered.

The probability that the plant location was the result of ADA assistance is an estimate based on a qualitative judgement about the significance

attached to the assistance by the decision maker and the relative importance of ADA assistance among other forms of assistance.

2) For the stimulus from linkage effects, stimulus refers to the net effect on income and employment in all linked plants resulting from the initial stimulation to the first order plants. In one sense, that portion of output in the linked plants which derives from the existence of the first order plant can be treated as both the actual and probable result of the original stimulation. The strength of the ADA assistance then would refer only to the probability that it led to the establishment of the first order plant, and the results that occurred in second order plants would be of concern only in measuring the "importance" of the assistance.

In another sense stimulation may refer to the capacity of the first order plant to induce backward and foreward linkages--whether or not they have actually occurred. The probability that establishment of a plant would lead to backward linkages would depend on the size of the market for intermediate products provided by this plant relative to the minimum volume necessary for the establishment of a second order plant to supply these products. When this ratio becomes 1 or greater the probability of the establishment of the backward linked plant becomes greater.¹ For forward linkages estimations of

¹c.f. Hirschman, A.D., The Strategy of Economic Development, p. 101.

probable effects are more difficult and no reasonable estimation of these effects could be made. If we could identify plants for the establishment of which other conditions are favourable, and which require as inputs the products of first order plants established with ADA assistance, then the probability of their establishment would turn upon the degree to which local suppliers of these inputs were essential to their operations. It may be possible from an examination of foreward linkages achieved in other areas to specify some plants whose establishment is probable as a result of the location of ADA assisted plants in this area.

The "strength" of the program in terms of linkage effects would then refer to its capacity to induce the establishment of those kinds of first order plants for which the probabilities of backward and foreward linkages are greatest. Overall strength is the sum of the probability that first order plants were established as a result of ADA assistance plus the probability that backward and foreward linkages can be stimulated by the type of firms attracted.

Data Sources

The four sources of data employed in the survey have been listed above: the survey of A.D.A. firms, the survey of non-A.D.A. firms (the control group), the A.D.A. data supplied (reconciliation data) and the data supplied through other government sources. A brief summary of the survey, its nature, methods and results will

be given here but any particular discussion of the quality of responses to particular questions is reserved for the portions of the study where the subject matter involved is analysed.

The survey was conducted during the months of June through August in the summer of 1968. The questionnaire employed is included as Appendix A in this study and can be seen to consist of seven parts:

- General Classification
- Investment History
- Production: Outputs
- Production: Inputs
- Employment and Wages
- Investment Incentives
- Location Factors

Three student assistants were employed under the supervision of the project director and the research associate and an effort was made to interview all those firms in the designated areas engaged in secondary manufacturing who had either established new plants or expanded, relocated or reconstructed old plants during the survey period. The survey proceeded in four stages. First, firms were contacted by letter, with a copy of the questionnaire enclosed, explaining the purpose of the study and requesting their cooperation. This was followed by telephone appointments for personal interviews by the research assistants. Second, each firm was interviewed by one of the research assistants, at which time the survey was discussed and, if possible, completed. Third, each questionnaire was reviewed as it came in and, where important information was missing or doubtful, follow-ups by telephone or letter were undertaken

to secure the missing material. Fourth, input and output data were examined to identify backward and forward linked firms located in any part of Nova Scotia and a separate survey, following similar procedures, was carried out for these firms. This latter survey did not prove successful so that most of the data concerning linkage effects had to be estimated in other ways.

One hundred and twelve firms in all were interviewed. Eighty-eight usable responses were received for a response rate of 78.5%. Of the total number of firms interviewed, 58 were identified as A.D.A. plants, i.e. firms who had either received assistance through the A.D.A. program or could be classed as active applicants. The response rate of usable replies for the A.D.A. plants was 91.4%. The remaining 54 plants constitute the control group (or non-A.D.A.) plants and 64.8% of these gave usable results. We feel that, considering the nature of the problem and the complexity of the survey, this constitutes an excellent rate of return. Comments as to the quality of the response to particular questions will be reserved for those parts of the paper where the questions involved are considered.

CHAPTER 2

IMPACT OF THE AREA DEVELOPMENT AGENCY PROGRAM: CAPITAL EXPANSION

The ultimate goals of the A.D.A. program are expressed in terms of employment and income improvements but these ends must be achieved through the encouragement of new capital formation to provide the new jobs and payrolls. The immediate impact of the program will be considered, therefore, in terms of its effects on new capital investment in the designated areas during the period from 1963 to 1967.

Some definitional matters must be clarified first. The most appropriate measure of capital impact would be the net capital figure, that is the addition to the value of the capital stock over the period less depreciation of existing stock and less the value of idled, obsoleted, abandoned or removed capital. The net impact of the A.D.A. program on the capital stock would be those additions to the capital stock occasioned by the program less the value of capital idled, obsoleted, abandoned or removed as a consequence of the program. Both measures require more information than is available and, accordingly, values which are proxies for the true values must be used. The total value of capital investment in the designated areas in the 1963-67 period is the gross value of new buildings and equipment, including external investment.

The estimates of capital investment in A.D.A. assisted firms come from two sources: the Summary of A.D.A. Programs as Per Active Applicants, December 31, 1963 to November 30, 1968; and the data for A.D.A. firms interviewed in this study. Data for the control group firms is derived entirely from the survey data. The survey data in each case measures only gross changes in capital investment totals over the period for the "1" first order plants interviewed. Linked investment effects or investment effects through household demand sector effects are not estimated and, at this stage of the study, no effort is made to ascertain the degree to which the investment made is actually the result of the A.D.A. program.

The total value of new investment in manufacturing in all parts of Nova Scotia between December 31, 1963 and December 31, 1967 is given as \$370,500,000.¹ For the same period, firms listed by the Area Development Agency as "active applications" showed total new investment intentions of approximately \$279,618,000.² The total value of all new investment in buildings and equipment undertaken by the firms interviewed in the survey was \$129,101,101. Firms receiving, or active applicants for, A.D.A. assistance accounted for \$120,562,197. Of these two totals, however, by far the greater part (\$103,654,000) is contributed by 8 relatively

¹Data supplied by DBS Business Finance Division, to the Dalhousie Institute of Public Affairs.

²This figure is a straight line interpolation from A.D.A. data supplied for periods ending December 31, 1966 and November 30, 1968. Estimates of total investments represent the intentions of the applicants only.

large firms who were not yet in production at the time the survey was completed and whose data enter this report mainly in the form of estimates for 1970. To these figures an additional \$24,653,000 in external investment can be added from the survey data making a grand total for all new capital investment for the survey firms between 1963 and the end of 1967--defined here as the change in estimated replacement value of all plant and equipment plus the value of external investments--of \$153,754,101.¹

Three observations are called for at this point. First, the survey attempted to cover every firm establishing or expanding in the region during the survey period. Only 78.5% of the firms gave usable replies, however, so the sample data are not all inclusive and the total capital investment figure must necessarily be short of the total for the designated area during the period. It is, nevertheless, sufficiently large to make meaningful statements regarding the characteristics of the investment induced and the effectiveness of the incentives. Second, the measures of the value of capital investment induced by the A.D.A. incentives published by the Area Development Agency (cf. Table 2.8) are a quite different measure of investment. They represent intentions regarding investments to be carried out as expressed in applications for assistance, whereas the data employed here represents actual

¹This total is greatly affected by one particular development the Heavy Water Plants at Glace Bay. Cape Breton Heavy Water Ltd. reports capital investment of \$30,000,000 and Deuterium of Canada Limited reports \$52,300,000 in buildings, equipment and external investments.

changes in the value of buildings and equipment and external investments carried out during the survey period. Third, it is obvious from the relative size of the data for the eight plants not yet in production (plus the size of the intentions expressed in the A.D.A. material) that it is still too early to make a truly adequate study of the effectiveness of the A.D.A. program. An investment incentives program with the goals and the means of this one must surely require at least a decade of operation for an adequate test of its results.

Capital Investment: The Survey Data

The main survey data covers 80 firms which represent a good sample of the new manufacturing concerns established in the province during the period of the A.D.A. program to December 31st, 1967. Of these 45 were classified as A.D.A. plants and 35 as non-A.D.A. (or control group) plants. An additional 8 "A.D.A." plants were surveyed, all of which were not yet in production but which represented major concerns which were expected to be in production in the next year. The sample can be considered large enough and representative enough to reveal the principle characteristics of the new and expanded manufacturing plants in the designated areas of Nova Scotia.

Table 2.1 gives the totals for capital investment for all the survey firms and the nature of the investment. Firms were asked, first, to indicate the nature of any alterations in plant since 1962 and, where the plant was not totally new, to indicate the

Table 2.1

Dollar Value of Capital Investment and Type
of Development: Survey Data, 1963 - 1967

Type of Development	A.D.A. Plants \$	Non A.D.A. \$	Total \$
Main Survey Plants			
Completely new	70,323,173	10,740,558	81,063,731
Expansion	2,511,600	721,997	3,233,597
Relocated	233,300	593,000	826,300
Reconstruction	411,000	30,000	441,000
Other	4,087,287	4,025,000	8,112,287
Total (buildings and equipment)	77,566,360	16,112,555	93,678,915
External Investments	14,313,899	5,649,101	19,963,000
Total (investment in fixed assets)	91,880,259	21,761,656	113,641,915
3 Additional Plants			
Completely new	96,704,000	--	96,704,000
Reconstructed	650,000	--	650,000
Total (buildings and equipment)	97,354,000	--	97,354,000
External Investments	4,670,000	--	4,670,000
Total (investment in fixed assets)	102,024,000	--	102,024,000
Total (all buildings and equipment)	174,920,360	16,112,555	191,032,915
Total (all investment in fixed assets)	193,904,259	21,761,656	215,665,915

effect the alteration had on the productive capacity of the plant. Answers to the latter question were considered to be too vague for use in the study and changes in plant capacity have simply been equated with changes in capital investment in the plant. The category "other" which includes installment of new machinery and equipment in plants not otherwise altered probably includes some alterations which the interviewer found difficult to classify under the other four headings. A more detailed breakdown by type of development for C.M.C. and S.I.C. classifications is given in the Statistical Appendix.¹ The value of capital investment in plant and equipment during the period is the estimate of the change in the replacement value of all plant and equipment between December 31st, 1962 and December 31st, 1967. For A.D.A. plants, the firm was asked the replacement value between 1967 and the last year before initial receipt of A.D.A. assistance to provide a comparison of A.D.A. assisted plants and other, non-A.D.A., plants over the period. Current dollar figures are used in every case but it is believed that this should have little effect on the real quality of the data since the period is both short and one of relative price stability. External investments are defined as "external investments directly linked to the plant's operation (e.g. sidings, roads, housing) in the period since January 1, 1963." Sixty-four of the 80 main survey plants reported no value for external investment at all so the values for this category of

¹Appendix of Computer Runs Accompanying the Study of The Impact of Area Development Agency in Nova Scotia, pp. 1-21.

investment are quite heavily concentrated among a small number of the firms.

Plants receiving A.D.A. assistance reported \$193,904,259 in new investment in fixed assets undertaken by December 31st, 1967, \$174,920,360 of this being in the form of changes in the replacement value of buildings and equipment, and \$19,003,899 in external investments. The greater part of the total investment in buildings and equipment is made up by the heavy capital investment figures in the 8 additional plants, particularly Cape Breton Heavy Water Ltd. and Deuterium of Canada Ltd., neither of which was yet in production at the time this report was prepared. (Capital investment figures for A.D.A. assisted plants would show further large increases if additional plants either in the planning stage or just underway at the time the survey was completed were included--for example the several highly capital intensive plants being constructed with A.D.A. assistance, in the Strait of Canso area.) \$167,027,173 of this new investment came from completely new plants constructed in the period--most of this, again, originating in the 8 additional plants reporting.

The thirty-five non-A.D.A. plants surveyed reported total capital investment in all fixed assets of \$21,761,656, with totally new plants contributing \$10,740,558 of this total. These figures should not be measured against the A.D.A. plant totals for relative comparisons since the survey sample sizes for the two groups of plants vary in their degree of completeness. The totals

represent only the total capital investment in those plants from which specific characteristics are discerned for comparison with those of the A.D.A. sample.

The A.D.A. Incentives

Some comments on the nature, quantity and significance of the A.D.A. incentives for capital investment can be made at this point though an analysis of the strength and importance of the program is reserved for later. Firms were asked to identify the type of aid received and to state the percentage of their total capital investment which was received, or expected, through the A.D.A. program. Estimates of the percentage received were considered too rough for conversion into actual dollar figures or to be used as they stand and instead the firms have been classified within percentage ranges. Since many firms had not yet received the aid applied for and some were not clear as to the amount to be expected, their estimates of the size of this aid could only be rough at best. They were also asked to rank the A.D.A. assistance in terms of its relative importance for the investment decision with other forms of government aid and to indicate the importance of this aid for their location decision.

Table 2.2 summarizes the types of aid received and the value of capital investment attributable to each type. Tax incentives have encouraged the greatest dollar value of investment, but by far the greater number of firms interviewed have taken advantage of the capital grant provisions. One large plant which preferred

Table 2.2

Capital Investment and Type of Assistance

A.D.A. Plants, 1963-1967

Type of Assistance	Number		Total Capital Investment (Buildings and Equipment)					
	Main Survey	8 Additional	Main Survey \$	%	8 Additional \$	%	Total \$	%
(1) Tax Incentives	12	1	63,450,989	81.8	51,000,000	52.4	114,450,989	65.4
(2) Capital Grants	31	7	12,260,084	15.8	46,354,000	47.6	58,614,084	33.5
(3) Both (1) and (2)	1	0	1,855,287	2.4	---	--	1,855,287	1.1
(4) Accelerated Depreciation	0	0	0	--	---	--	---	--
TOTAL	44	8	77,566,360	100.0	97,354,000	100.0	174,920,360	100.0

Source: Survey data.

the tax holiday incentive was sufficient to weight the totals decisively in favour of that program for the main survey plants and among the 8 additional plants one large plant again accounted for a preponderance of new investment under the tax incentive plan. Accelerated depreciation did not appear attractive as an incentive to any of the Nova Scotian firms interviewed.

Firms which receive A.D.A. assistance make an estimate of the value of a tax holiday to their operations or establish the value of the capital grant in their reports to the Agency. The survey responses to the request to estimate the proportion of total capital needs of the plant in the period 1962-1967 which have been met through the assistance of the Area Development Agency were less assured. The firms were asked to make this estimate on the assumption they would in fact receive all the assistance they expected or were promised when their application was accepted by A.D.A. but it seems probable that some were still unwilling to include anything but assistance already received in their estimate. Table 2.3 summarizes the responses by classifying firms by broad percentage classifications and subdividing the results for C.M.C. districts. As can be noted, twenty-seven of the firms are classified as receiving 0 to 10% of the value of capital investment in A.D.A. assistance in the form of capital grants. Twelve of these firms were assisted by tax incentives and five made no estimate of the proportion of assistance received, so that only ten firms who received capital grants actually reported grants as low as this. Underestimates by the firms may account for part of these, but there are

two other obvious reasons why the A.D.A. assistance should be so small a part of the total investment: the \$5,000,000 limit on the value of capital grants and the limits placed on the kinds of investment eligible for assistance.

Table 2.3
Capital Grants As A Per Cent of Total Capital Invested
45 A.D.A. Plants, 1962 - 1967

C.M.C. Areas Designated	0-10%	11 to 20%	21-30%	# Firms
01	8	2	3	13
02	1	0	0	1
03	1	0	0	1
04	2	0	0	2
05	1	0	3	4
06	2	2	2	6
07	5	0	3	8
08	6	0	2	8
09	1	0	1	2
11	0	0	0	0
12	0	0	0	0
Total	27	4	14	45

When questioned whether the A.D.A. assistance received had been of a nature to influence their choice of site, 25 of the 45 A.D.A. survey firms answered "no" and 19 "yes". The 19 firms replying in the affirmative were questioned further as to the strength of this influence and replied that the influence on their choice of site had been:

Strong - 9

Moderate - 4

Minor - 5

No answer - 1

The questions can be interpreted only as referring to the choice of a designated area over a non-designated area. Since similar incentives are offered for location in designated areas in other provinces, the choice of which province to locate in could not have been influenced by the program itself. It is rather surprising to note, moreover, that only 13 of the 45 firms interviewed felt that the incentives program had a strong or moderate influence on their decision to locate where they did. A larger proportion of the firms, however, felt that the program had exercised some influence on their development plans, e.g. either speeding up the planned development or encouraging the firm to enlarge its plans. Thirty of the firms replied that the A.D.A. program had influenced their development and 10 denied any influence.¹

Presumably these 10 firms, 22% of the sample, would have carried out the same investment program in the absence of the A.D.A. incentives and the help they received was a straight bonus. The Program scored somewhat better with the 8 additional firms: 7 of the 8 felt A.D.A. had influenced their choice of site, three felt the influence was strong and the other four felt it was at least a moderate influence. In a contradictory manner, however, two of the three who felt A.D.A. had exercised a strong influence in their choice of site and four of those who felt the influence

¹A more detailed breakdown of replies to this question is included in the Statistical Appendix, p.

was moderate, stated they would have built in the same place in the absence of the A.D.A. program.

While this data does not adequately measure the strength or importance of the A.D.A. program, it does make it obvious that it is dangerous to describe the capital investment undertaken by A.D.A. assisted plants as "attributable" to the A.D.A. program. It is evident that the A.D.A. assistance, though it was appreciated by most, in many cases had little or no influence on the investment and location decisions of the firms receiving it.

Capital Investment: Destination

Eleven of the twelve Canada Manpower Centers (CMC) in Nova Scotia were designated areas within the terms of the Area Development Incentives Act of 1965.¹ The Halifax district (CMC #10) was not designated during the period of the study. Table 2.4 indicates the destination of new investment in buildings and equipment during the period by Manpower Centers. Single large developments in specific areas tend to produce heavy concentrations of investment, particularly where the project is quite capital intensive;

¹The twelve CMC offices in Nova Scotia, by number are:

Kentville 01	New Glasgow 07
Bridgewater 02	Yarmouth 08
Sydney Mines 03	Liverpool 09
Sydney 04	Halifax 10
Truro 05	Springhill 11
Amherst 06	Inverness 12

Table 2.4

Destination of Capital Investment in Nova Scotia
Main Survey Firms By C.M.C. Districts, 1962 - 1967

C.M.C. #	Capital Invested in Buildings and Equipment					
	A.D.A. Firms		Non-A.D.A. Firms		Total	
	\$	%	\$	%	\$	%
1	3,787,490	4.9	356,397	2.2	4,143,887	4.4
2	60,000	.1	7,625,000	47.3	7,685,000	8.2
3	64,000	.1	0	--	64,000	.1
4	4,818,937	6.2	1,872,500	11.6	6,691,437	7.1
5	575,333	.7	762,000	4.7	1,337,333	1.4
6	1,571,500	2.0	410,000	2.6	1,981,500	2.1
7	56,924,800	73.4	217,000	1.4	57,141,800	61.0
8	7,941,000	10.2	191,058	1.2	8,132,058	8.7
9	1,823,300	2.4	651,000	4.0	2,474,300	2.6
11	0	--	12,000	.1	12,000	.1
12	0	--	4,015,600	24.9	4,015,600	4.3
All C.M.C.	77,566,360	100.0	16,112,555	100.0	93,678,915	100.0

thus the heaviest capital investment appears in the New Glasgow CMC area as the result of one extremely large industrial development established during the survey period. The survey found the greatest number of plants receiving ADA assistance in the Kentville CMC area but they, by contrast, were mostly small firms so that the area places fourth in terms of the value of capital assistance received. All three of the growth areas suggested by the Voluntary Economic Planning Board, in the New Glasgow and Sydney CMC areas, (including between there much of the Strait of Canso area which comprises a third growth area) are areas to which heavy concentrations of ADA assistance have gone. Capital investment in non-ADA firms, on the other hand, appears to be concentrated more outside these growth areas. The limited nature of the data and the preponderant influence of a few projects makes it unwise to infer much from this geographic pattern of distribution of investment.

The 8 additional ADA plants again show heavy concentrations of new investment in the New Glasgow and Sydney CMC areas, and in the Bridgewater area as well. This additional investment, by CMC districts is as follows:

Table 2.5

8 Additional Plants

CMC	Capital Investment, 1962-67 (Buildings and Equipment)
01	\$ 650,000
02	7,894,000
04	81,000,000
05	2,250,000
06	60,000
07	5,500,000
All CMC	\$97,354,000

Table 2.6 indicates the distribution of new investment by industrial classification, employing three digit SIC code numbers. Overall, 65.90% of the new investment in buildings and equipment reported went to Pulp and Paper Mills (SIC number 271), the greater part of this being in one major development. The second largest category was Fish Products (SIC number 111) with 13.26% of the total so that 79.16% of the overall new investment went to those two industries dependent on the basic primary resources of the area: the resources of the forests and the sea. ADA assisted plants and non-ADA plants showed concentration of investment in the same two industries, though in reverse orders. Abrasives Manufactures (357), Miscellaneous Textile Industries (229), Manufacturers of Industrial Chemicals (378) and Other Paper Converters (274) follow in that order for the

Table 2.6

Destination of Capital Investment in Nova Scotia
Main Survey Firms by SIC Numbers, 1962 - 1967

SIC #	Capital Invested in Buildings and Equipment					
	ADA Firms		Non-ADA Firms		Total	
	\$	%	\$	%	\$	%
103	0	--	147,397	.91	147,397	.16
105	0	--	187,000	1.16	187,000	.20
107	118,600	.15	0	--	118,600	.13
111	4,248,000	5.48	8,182,058	50.78	12,430,058	13.26
112	272,000	.35	0	--	272,000	.29
123	82,578	.11	115,000	.71	197,578	.21
129	0	--	65,000	.40	65,000	.07
139	892,125	1.15	0	--	892,125	.95
141	0	--	45,000	.28	45,000	.05
143	360,000	.46	0	--	360,000	.38
147	0	--	300,000	1.86	300,000	.32
163	116,000	.15	0	--	116,000	.12
172	19,800	.03	0	--	19,800	.02
174	0	--	51,000	.32	51,000	.05
179	0	--	410,000	2.54	410,000	.44
229	3,000,000	3.87	0	--	3,000,000	3.20
239	105,000	.14	0	--	105,000	.11
243	400,000	.51	0	--	400,000	.43
246	0	--	2,000	.01	2,000	.002
251	171,000	.22	240,000	1.49	411,000	.44
254	100,000	.13	98,500	.61	198,500	.21
259	0	--	29,000	.18	29,000	.03
266	175,000	.23	0	--	175,000	.19
271	57,730,000	74.43	4,000,000	24.83	61,730,000	65.90
273	450,000	.58	0	--	450,000	.48
274	1,890,287	2.44	41,000	.25	1,931,287	2.06
286	281,800	.36	75,000	.47	356,800	.38
289	0	--	100,000	.62	100,000	.11
291	502,000	.65	0	--	502,000	.54
292	124,000	.16	0	--	124,000	.13
303	0	--	27,000	.17	27,000	.03
305	0	--	25,000	.16	25,000	.03
315	0	--	-2,000	-.01	-2,000	-.002
324	0	--	30,000	.19	30,000	.03
325	0	--	117,000	.73	117,000	.12
327	0	--	15,600	.10	15,600	.02

Table 2.6 (Cont'd)

SIC #	ADA Firms		Non-ADA Firms		Total	
	\$	%	\$	%	\$	%
328	0	--	137,000	.85	137,000	.15
329	145,000	.19	0	--	145,000	.15
335	0	--	975,000	6.05	975,000	1.04
339	65,000	.08	0	--	65,000	.07
347	158,000	.20	700,000	4.34	858,000	.92
353	44,500	.06	0	--	44,500	.05
357	3,366,726	4.34	0	--	3,366,726	3.59
372	304,733	.39	0	--	304,733	.33
375	239,000	.31	0	--	239,000	.26
378	2,130,211	2.75	0	--	2,130,211	2.27
379	75,000	.10	0	--	75,000	.08
All SIC	17,566,360	100.0	16,112,555	100.0	93,678,915	100.0

ADA plants with a wide dispersion among the remainder of the twenty-nine categories represented. When the 8 additional plants are included, Industrial Chemical (378) becomes the largest single industrial classification receiving new investment, with Pulp and Paper Mills (271) and Fish Products (111) following in that order. Large volumes of investment have taken place in ADA assisted plants, and others, since the termination of the survey but it seems that the major portions of the dollar value of capital investment has gone into the same three industrial classifications, with an additional concentration of investment in Petroleum Refineries (365).

A major concern in the stimulation of industry in a retarded region should be to stimulate those industries which have a fair chance of achieving a viable economic position in the future and reasonable prospects of "growth". Failure to do this simply ensures future retardation as the region's industrial mix continues to be characterized by declining or stagnant employers relative to more dynamic industrial employers in other parts of the country. Table 2.7 provides some information regarding the directions of capital investment in Nova Scotia during the survey period in relation to industries ranked by their record of growth in Canada as a whole during the beginning stages of the ADA program. The interpretation of the table involves some problems of definition and intention--and some pitfalls it is difficult to avoid.

Column one of Table 2.7 ranks Canadian industries in three digit SIC classifications by employment changes in the period

1961-1964.¹ In this context growth industries may be defined as industries in which employment has grown in accordance with some criteria of growth, but in this study it has seemed sufficient just to rank the industries in order of their growth rather than to define categories of growth. The choice of employment as a measure of growth seems appropriate to the needs of the study since we are considering the impact of the ADA program on employment and incomes as the basic test of its effectiveness. The questions can then be asked whether, on the record, investment in ADA assisted and non-ADA plants in Nova Scotia has tended to go towards those industries which rank highest in the employment growth scale for Canada and, secondly, whether a rank correlation can be found between the order of these industries by growth and the order in which the value of investment in industrial classifications in Nova Scotia appears.

The first question can be answered by inspection of Table 2.7 Column (4) indicates by a number which of the standard industrial classifications in column (1) have received ADA assistance for investments undertaken in Nova Scotia. Seventeen of these ADA firms fall in the bottom half of the scale and twelve in the upper half. Column (6) indicates that non-ADA plants are more evenly split,

¹The data for employment changes has been taken from M. H. Yates and P. E. Lloyd, "A Study of the Impact of the Area Development Agency Program in the Southern Georgian Bay Area, Ontario", Report submitted to the Area Development Agency, Ottawa, 1968, Appendix V, pp. 243-244.

Table 2.7

Rank Correlation Data: Canadian Industries
Ranked by Employment Growth, 1961-64, and
Nova Scotia Industries Ranked by Capital Investment, 1962 - 67

Canada: Industries Ranked ₁ for Growth by SIC		Nova Scotia (designated areas) Net Capital Investment (Buildings and equipment) Ranked by SIC			
SIC	Rank	ADA Plants		Non-ADA	Total
329	1	(3)	(4)	0	(1) 26
348	2				
306	3				
323	4				
325	5		0	(1) 11	(2) 30
328	6		0	(2) 10	(3) 27
324	7		0	(3) 20	(4) 40
359	8				
216	9				
385	10				
308	11				
315	12		0	(4) 26	(5) 47
292	13	(2)	20	0	(6) 28
335	14		0	(5) 3	(7) 7
213	15				
369	16				
218	17				
201	18				
311	19				
229	20	(3)	4	0	(8) 4

Table 2.7 (Cont'd)

SIC	Rank	ADA Plants		Non-ADA		Total	
298	21						
336	22						
169	23						
252	24						
264	25						
316	26						
303	27		0	(6) 22		(7)	42
305	28		0	(2) 23		(10)	43
101	29						
377	30						
347	31	(4)	18	(8) 4		(11)	9
372	32	(5)	12	0		(12)	17
291	33	(6)	8	0		(13)	10
304	34						
266	35	(7)	16	0		(14)	24
331	36						
309	37						
274	38	(8)	6	(9) 19		(15)	6
294	39						
318	40						
399	41						
151	42						
339	43	(9)	27	0		(16)	35
301	44						
326	45						
248	46						
327	47		0	(10) 24		(17)	45
221	48						
239	49	(10)	23	0		(18)	32

Table 2.7 (Cont'd)

SIC	Rank	ADA Plants		Non-ADA		Total	
147	50		0	(11)	6	(19)	18
259	51		0	(12)	21	(22)	41
354	52						
332	53						
297	54						
307	55						
215	56						
179	57		0	(13)	5	(21)	13
197	58						
261	59						
338	60						
193	61						
352	62						
214	63						
393	64						
373	65						
243	66	(11)	10		0	(22)	14
272	67						
163	68	(12)	22		0	(23)	31
374	65						
111	70	(13)	2	(14)	1	(24)	2
273	71	(14)	9		0	(25)	11
379	72	(15)	26		0	(26)	34
251	73	(16)	17	(15)	7	(27)	12
378	74	(17)	5		0	(28)	5
112	75	(15)	14		0	(29)	19
139	76	(19)	7		0	(30)	8
124	77						
107	78	(20)	21		0	(31)	29

Table 2.7 (Cont'd)

SIC	Rank	ADA Plants		Non-ADA		Total	
223	79						
337	80						
271	81	(21)	1	(16)	2	(32)	1
383	82						
356	83						
355	84						
268	85						
351	86						
183	87						
381	88						
357	89	(22)	3		0	(33)	3
135	90						
141	91		0	(17)	18	(34)	38
254	92	(23)	24	(18)	14	(35)	21
103	93		0	(19)	9	(36)	25
302	94						
256	95						
153	96						
244	97						
375	98	(24)	15		0	(37)	20
376	99						
286	100	(25)	13	(20)	15	(38)	16
382	101						
133	102						
258	103						
101	104						
131	105						
219	106						
295	107						
353	108	(26)	28		0	(39)	39

Table 2.7 (Cont'd)

SIC	Rank	ADA Plants		Non-ADA		Total	
288	109						
123	110	(27)	25	(21)	12	(40)	22
341	111						
211	112						
129	113		0	(22)	16	(41)	36
321	114						
398	115						
105	116		0	(23)	8	(42)	23
289	117		0	(24)	13	(43)	33
175	118						
212	119						
245	120						
287	121						
249	122						
143	123	(28)	11		0	(44)	15
145	124						
172	125	(29)	29		0	(45)	44
343	126						
128	127						
296	128						
345	129						
174	130		0	(25)	17	(46)	37
334	131						
125	132						
384	133						
365	134						
371	135						
247	136						
246	137		0	(26)	25	(47)	46
231	138						

thirteen falling in the lower half of the scale and thirteen in the upper half. Both columns (4) and (6) indicate that a large number of the higher growth industries in Canada received no investment in Nova Scotia during that period: only 10 of the ADA firms and 11 of the non-ADA firms fell within the first fifty growth industries in the Canadian scale. The four industrial classifications receiving the greatest amount of industrial investment in Nova Scotia since 1962, Pulp and Paper Mills (271), Fish Products (111), Industrial Chemicals (378) and Petroleum Refineries (365), rank 81st, 70th, 74th and 134th respectively in the national scale.

After excluding all those industries which are not represented in the new industrial investment recorded for the survey firms, a rank correlation was made between the order of growth of the remaining firms in the national scale and the order of the value of new investment in buildings and equipment among the industrial classifications of the survey firms. Columns (3), (5) and (6) indicate, with the bracketed numbers, the rank of the respective standard industrial classifications in the national scale and these were correlated with columns (4), (6) and (8) which indicate the rank by value of investment in the provincial scale. A high rank correlation value would indicate a distribution of new investment in the direction of those industries which showed the greatest employment growth nationally. The actual correlation values were as follows:

Rank correlation value for Total (column (7) and (8))	0.034
--	-------

Rank correlation value for Non-ADA (columns (5) and (6))	-0.037
Rank correlation value for ADA firms (columns (3) and (4))	0.154

While the ADA plants do somewhat better on this test than the others, none of the correlation values suggest much success at steering new investment in the direction of national high growth industries. The immediate conclusion would be that, during the period of the ADA program, Nova Scotia did not attract much investment in industries that showed a high record of growth in Canada.

Pitfalls in interpreting these results remain. We have avoided correlating the local investment record against local employment growth records since, however sophisticated the methods of identifying the local growth industries, the results would be irrelevant or spurious. The comparisons, however, do not make allowances for regional comparative advantages. It is highly unlikely, for example, that large scale fish plants would be located in central Canada or the Prairies and highly likely that they should be a major area of investment in Atlantic Canada whatever their rank in the national growth record. Similarly industries dependent on easily accessible forest resources, or the natural harbour facilities on the Nova Scotian coast may provide viable and even growing economic development in the area whatever their record nationally. It would be desirable to attract national growth industries to the region, but not if regional disadvantages made their survival or growth unlikely, and, by the same token, it could be even more desirable to attract industries that show a national decline if regional advantages make their survival and growth

likely. Considerations on the success or lack of success of the ADA program in encouraging "growth" industries to locate in Nova Scotia should not ignore this.

ADA Summary Data

Table 2.8 gives a summary of activities generated under the ADA program as provided by the Area Development Agency. It is, of course, a tentative estimate covering all those firms listed as active applicants who have either received or expect to receive assistance under one or the other of the ADA incentives programs. The investments in fixed assets reported are estimates of the investment carried out or to be carried out in the project for which assistance has been sought and the value of ADA incentives columns give estimates of the value of assistance received or expected through the application. In all cases, therefore, the figures do not represent actual investments undertaken or actual dollar assistance received. The data is most interesting for the comparisons it gives for the amount of investment and incentives in Nova Scotia as compared to the Canadian totals and averages. Thirteen percent of the projects in Canada were in Nova Scotia and they accounted for 16.6% of the investment reported by ADA firms in Canada. This suggests that the average project was somewhat larger in Nova Scotia than in Canada as a whole and would partially explain why the ratio of the value of ADA incentives to total investment projected is somewhat lower in Nova Scotia, 15%, than in Canada as a whole, 20%, if firms having very large investments took the capital grants option with the \$5,000,000 limit.

Table 2.8

Summary of Activities Generated Under the A.D.A. Program,
by Industrial Classification, as per Active Applications
December 1963 to November 30, 1968
Nova Scotia and Canada

Standard Industrial Classification	(1) Projects		(2) CANADA		(3) %		(4) Investment in Fixed Assets		(5) CANADA		(6) %		(7) Value of A.D.A. Incentives (Tax and Grant)		(8) CANADA		(9) %		(10) Ratio A.D.A./INV.		(11) CANADA	
	#	N. S.	#		N.S./CAN.	%	N.S.	(\$,000)	N.S.		N.S./CAN.	%	N.S.	(\$,000)	N.S.		N.S./CAN.	%	N.S.		N.S.	
Food, beverage, and tobacco	47		235		20.0		27,431	147,002		18.7			5,198	37,079		14.0			18.9		25.2	
Rubber, leather and textile	6		61		9.8		8,577	81,937		110.5			3,012	25,704		11.7			35.1		31.4	
Knitting mills and clothing	4		25		16.0		822	6,474		12.7			235	2,825		8.3			28.6		43.6	
Wood products and furniture	17		177		9.6		4,364	89,156		4.9			1,202	23,178		5.1			27.5		26.0	
Pulp and paper	8		35		22.9		100,110	797,767		12.5			12,911	125,765		10.3			12.9		15.8	
Printing and Publishing	3		27		11.1		220	9,104		2.4			73	2,131		3.4			33.2		23.4	
Primary Metal	3		25		12.0		2,676	168,561		1.6			554	28,043		2.0			20.7		16.6	
Metal Fabricating	4		75		5.3		603	24,079		2.5			250	10,220		2.4			41.5		42.4	
Machinery & Transportation	5		107		4.7		3,911	120,333		3.3			1,213	47,461		2.6			31.0		39.4	
Electrical Products	3		31		9.7		884	60,334		1.5			2,723	17,432		15.6			308.0		28.9	
Non-Metallic Mineral	9		58		15.5		8,225	106,604		7.7			3,756	23,567		15.9			45.6		22.1	
Petroleum and Chemical	16		70		22.8		195,118	509,223		38.3			21,732	78,085		27.8			11.1		15.3	
Misc. Manufacturing	6		61		9.8		1,499	19,208		7.8			438	5,783		7.6			29.2		30.1	
Total	131		987		13.3		854,440	2,139,782		16.6			53,301	427,280		12.5			15.0		20.0	

Source: Data supplied by Area Development Agency

Column (9), however, also indicates that the percent of the total value of incentives going to firms in Nova Scotia is smaller than either the province's percentage of projects or of total investment in fixed assets. Apparently Nova Scotia firms have not benefited from the ADA incentives to as high a degree as other parts of Canada. Unfortunately the data on which these observations are based are very tentative and probably contain some errors (the Nova Scotia data for electrical products contains some obvious errors.)

Chapter III

The Input-Output Structure

The role of an incentive program to encourage industrial development should, inevitably, produce some effects on the input-output structure of the economy affected--probably both quantitative and qualitative. We are concerned here with these consequences of the ADA program with respect to three results: the quantitative growth of inputs and outputs resulting from the program; the geographic and industrial distribution of these effects; and the linkage effects, backward and forward, generated by the initial input-output effects.

The data source for the analysis of input-output effects is the industry survey conducted in 1968 covering the period 1962-1967. The ADA program has its inception in 1963 and it is unlikely that any plants should demonstrate effects on their inputs or outputs rising out of the program earlier than 1964. The effectual period of the survey is thus only from three to four years, a period too short for much of the effects on industrial structure in the region to manifest itself. Many of the recipients of ADA assistance were not yet in production at the close-off date, or were in only the early stages of their production expansion, hence the true effects of the program are not fully realized within

the survey period. The analysis that follows, however, may give a reasonable impression of the nature of the impact of the ADA program on the input-output structure in the region even if the absolute values employed represent incomplete measures. It is evident again that a more meaningful estimate of effects could be obtained only over a longer period when firms have time to realize their production potential and to develop the contacts with suppliers and markets most suitable to their continuing operation as viable economic units. The extent to which this implies significant linkage effects within the region may alter considerably in subsequent years as effective contacts within the region are developed.

Firms were asked the total dollar value of output produced in their last complete financial year, and the same value for 1962, or the last year before ADA assistance was received. They were also asked for the dollar value of sales--for part processed and finished goods by item--with the intention of identifying inventory changes in determining output effects. We suspect, however, that many of those providing answers made no clear distinction between total output data and total sales data so that we have preferred to use the total sales data as a measure of output effects without further distinction. Estimates of sales for 1970 were also asked for, but quite a few firms lacked adequate forecasting methods and declined to make guesses with the result that the 1970 output estimates are quite incomplete and limited use is made of the data.

The kind and value of non-labour inputs were asked for, again for 1967 as the final year, and 1962 or the year prior to

ADA assistance as the before year. The inputs were classified as "Main Materials" and "Power and fuels" and the name and address of suppliers were also sought. The latter information was sought both to identify backward linkages out of ADA (and non-ADA) plants and to identify geographic origins of inputs. Output data was similarly classified by place of destination to identify forward linkages and geographic distribution of product. For both inputs and outputs geographic distributions were classified under the headings: Nova Scotia, other Atlantic Provinces, rest of Canada, U.S.A., and rest of world. The data for these distributions were reasonably good and, though in a few instances the estimates appear rough or required some approximations by the interviewers, the conclusions derived seem dependable.

The material required for input and output data represents one of the most difficult sections of the survey, and one of the most essential for our calculations. The interviewers were asked to take particular care in assembling this data and to be particularly persistent in ferreting it out. Careful followups were undertaken where the data seemed dubious.

Output Effects

Over the period of the survey the 80 interview firms reported an increase in the value of output (sales) of \$77,362,365 of which \$50,639,056 came out of ADA assisted plants. Table 3.1 shows a breakdown of changes in value of output by finished and part processed goods for ADA and non-ADA firms and totals. It is

noteworthy that the greater part (63%) of output from ADA firms is in the form of part processed goods--a fact which might suggest the possibility of strong linkage effects in the area. Unfortunately the subsequent analysis does not support this pre-supposition.

Table 3.1

Changes in Total Value of Output (Sales)
Main Survey Firms Over Period 1962-1967

Type of Output	ADA Firms	Non-ADA Frims	Total
Finished Goods	\$18,683,307	\$24,776,709	\$43,460,016
Part Processed	31,955,749	1,946,600	33,902,349
Total	50,639,056	26,723,309	77,362,365

Output: Destination

Table 3.2 sums up the destination of outputs and the changes occassioned in this distribution during the study period. The United States is the largest market for the total output of the new and expanded plants but the ADA assisted firms seem to be much more oriented to U.S. markets than the non-ADA firms: 55.7% of total output of ADA firms went to U.S. markets in the final year (1967) as compared to 33.8% for non-ADA firms. Part processed output went almost entirely to American markets (85%) in 1967, which represented the greatest change in destination revealed in the data. In the before year 65.2% of the part processed output of those

Table 3.2
Destination of Output, Before Years and Final Year Sales
Main Survey Firms to 1967

Class of Firms and Type of Output		Destination of Output: Sales to:				Rest of World				Total			
		N. S.		Other Atlantic Provinces		Rest of Canada		U.S.A.		Rest of World		Total	
		\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
I ADA Firms													
Finished Goods:	BY	7,564,090	29.1	1,969,888	7.6	5,155,073	19.9	10,181,589	39.2	519,873	2.0	25,957,713 ^a	100
	FY	13,596,457	30.5	4,871,821	10.9	8,931,741	20.0	15,116,913	33.9	495,127	1.1	42,641,120 ^b	100
Part Processed:	BY	98,763	7.8	--	0	341,000	27.0	--	0	824,000	65.2	1,263,763	100
	FY	217,156	7	245,665	7	3,117,247	9.4	28,284,057	85.1	1,355,347	4.1	33,219,512	100
Total:	BY	7,662,853	28.2	1,969,888	7.2	5,496,073	20.2	10,181,589	37.4	1,343,873	4.9	27,221,476	100
	FY	13,813,613	17.7	5,117,486	6.6	12,048,988	15.5	43,400,970	55.7	1,850,514	2.4	77,860,532	100
II Non-ADA Firms													
Finished Goods:	BY	4,485,790	26.4	579,244	3.4	2,673,805	15.8	6,118,534	36.1	3,107,741	18.3	16,965,114	100
	FY	12,300,885	29.5	2,041,471	4.9	9,291,516	22.3	13,161,861	31.5	4,951,560	11.9	41,741,824 ^c	100
Part Processed:	BY	--	0	--	0	--	0	--	0	--	0	--	0
	FY	246,600	12.7	--	0	105,000	5.4	1,595,000	81.9	--	0	1,946,600	100
Total	BY	4,485,790	26.4	579,244	3.4	2,673,805	15.8	6,118,534	36.1	3,107,741	18.3	16,965,114	100
	FY	12,547,485	28.7	2,041,471	4.7	9,396,516	21.5	14,756,861	33.8	4,951,560	11.3	43,688,424	100
III All Firms													
Finished Goods:	BY	12,049,880	28.1	2,549,132	5.9	7,828,878	18.2	16,300,123	38.0	3,627,614	8.5	42,922,827	100
	FY	25,897,342	30.0	6,913,292	8.0	18,223,257	21.1	28,278,774	32.7	5,446,687	6.3	86,382,844	100
Part Processed:	BY	98,763	7.8	--	0	341,000	27.0	--	0	824,000	65.2	1,263,763	100
	FY	463,756	1.3	245,665	7	3,222,247	9.2	29,879,057	85.0	1,355,387	3.8	35,166,112	100
Total:	BY	12,148,643	27.5	2,549,132	5.8	8,169,878	18.5	16,300,123	36.9	4,451,614	10.1	44,186,590	100
	FY	26,361,098	21.7	7,158,957	5.9	21,445,504	17.6	58,157,831	47.8	6,802,074	5.5	121,548,956	100

Notes: a) \$567,213 (2.2%) of output is not distributed by place of destination. The total figure is, therefore, more than the sum of the columns.
b) \$1,628,961 (3.6%) of output is not distributed by place of destination. Again, the total is not the sum of the columns.
c) The total is slightly greater (0.1%) than the sum of the columns.
Totals construed from these figures will carry on the same variations from the sums of columns.

ADA assisted plants in production went to the "rest of the world" sector and 27% to the "rest of Canada", i.e. Canada outside the four Atlantic Provinces. The thirty-five non-ADA plants reported no part processed output in 1962. For finished products the American market was also the most important in both years but for both ADA and non-ADA plants there was some decline in the percent of finished products being marketed in the United States. For both classes of plants markets within the Atlantic Provinces and the rest of Canada absorbed the difference.

Non-ADA plants marketed an increasing proportion of their output in the "rest of Canada" sector and ADA plants a decreasing proportion--though in absolute values the sales by ADA plants to the rest of Canada market increased greatly (from \$5,496,073 to \$12,048,988). The information does suggest, nevertheless, that the ADA program has not greatly affected the traditional pattern of Nova Scotian exports which have always depended much more on American markets than on Canadian markets outside the Atlantic region. Overall sales of 17.6% in the "rest of Canada" for products of the manufacturing sector in 1967 is probably quite characteristic of sales patterns over a long period.

Sales within Nova Scotia (including the non-designated CMC district of Halifax-Dartmouth) showed considerable increases, but declined as a percentage of the total sales. Non-ADA firms showed a slightly increased proportion of their sales in the province, but the ADA firms sold a much smaller proportion of their output

in Nova Scotia in 1967 (17.7%) than in the before year (28.2%).

It is most significant to note that only a very small part of part processed goods sold by ADA firms were marketed within the province by 1967: \$217,156, or seven tenths of one percent of the total. It is obvious that forward linkage effects generated through the program can only be minimal in Nova Scotia and the advantage of identifying such linkages does not seem to justify the effort.

Forward linkages imply that the output of one plant permits the undertaking of some new industrial activity or the expansion of some existing activity which was not previously likely to occur in the province. This requires that one can know not only the amount of input the second order plant requires from the first but also the probability that the forward linked plant's operation was dependent on inputs from this source. The absense of any reasonable way of estimating "probable" links is an additional reason why a measure of forward linkage effects has not been attempted in this study.

Output: Place of Origin

Only two of the eleven CMC districts in the designated areas of Nova Scotia failed to show outputs from any ADA assisted plants establishing or growing in the area over the survey period. One of these districts, Inverness (CMC #12) shares the Port Hawksbury area on the Strait of Canso where considerable industrial expansion, much of it with ADA assistance, is currently underway.

At the time of the survey these plants were in planning or early development stages and hence not producing; the result is that one of the most promising areas of industrial growth in the province is almost totally neglected. Any record of the "importance" of the ADA impact will be greatly improved by the inclusion of the new plants establishing in the Strait of Canso area and the areas affected by the Cape Breton Development Corporation.

Table 3.3 summarizes the origin of output by CMC districts and indicates the changes occurring in the survey plants during the period. For the non-ADA firms this represents changes in output between 1962 and 1967, and for the ADA plants it represents changes in output between the last year before an ADA assisted development or change in plant occurred and output in 1967. The largest output changes for ADA plants occurred in the New Glasgow CMC district (54.6% of the total change for ADA plants); in the Yarmouth CMC district (19.6%); in the Kentville CMC district (9.2%); and in the Liverpool CMC district (7.4%). These are all areas which were major recipients of new investment and are also the four areas with the highest total value of output in ADA plants in 1967. From Table 3.5 it can be observed that these four areas had the highest values for "goods of own manufacture" in 1963 as well, after the Halifax and Sydney areas, so it appears from this data that the principle output effects following from the ADA assistance have occurred in those CMC districts which were production leaders before the plan. Again the recent and very encouraging development of new industry in Cape Breton county comes too late to

Table 3.3

Origin of Output by CMC District, Before Year,

Final Year and Change

Main Survey Firms

CMC District		ADA Firms		Non-ADA Frims		Total	
		\$	%	\$	%	\$	%
01	BY	9,218,808	34.3	2,841,017	16.8	12,059,825	27.5
	FY	13,871,050	17.9	4,025,118	9.1	17,896,168	14.7
	<u>Change</u>	<u>4,652,242</u>	<u>9.2</u>	<u>1,184,101</u>	<u>4.4</u>	<u>5,836,343</u>	<u>7.5</u>
02	BY	0	--	0	--	0	--
	FY	280,000	.4	13,517,000	30.7	13,797,000	11.3
	<u>Change</u>	<u>280,000</u>	<u>.6</u>	<u>13,517,000</u>	<u>49.8</u>	<u>13,797,000</u>	<u>17.7</u>
03	BY	0	--	0	--	0	--
	FY	140,000	.2	0	--	140,000	.1
	<u>Change</u>	<u>140,000</u>	<u>.3</u>	<u>0</u>	<u>--</u>	<u>140,000</u>	<u>.2</u>
04	BY	0	--	67,000	.4	67,000	.2
	FY	1,084,467	1.4	2,827,000	6.4	3,911,467	3.2
	<u>Change</u>	<u>1,084,467</u>	<u>2.1</u>	<u>2,760,000</u>	<u>10.2</u>	<u>3,844,467</u>	<u>4.9</u>
05	BY	190,000	.7	889,683	5.2	1,079,683	2.5
	FY	2,001,996	2.6	1,912,990	4.3	3,914,986	3.2
	<u>Change</u>	<u>1,811,996</u>	<u>3.6</u>	<u>1,023,307</u>	<u>3.8</u>	<u>2,835,303</u>	<u>3.6</u>
06	BY	3,030,000	11.3	533,000	3.1	3,563,000	8.1
	FY	4,389,772	5.7	600,000	1.4	4,989,772	4.1
	<u>Change</u>	<u>1,359,772</u>	<u>2.7</u>	<u>67,000</u>	<u>.2</u>	<u>1,426,772</u>	<u>1.8</u>
07	BY	946,000	3.5	975,000	5.7	1,921,000	4.4
	FY	28,716,648	37.0	2,282,500	5.2	30,999,148	25.5
	<u>Change</u>	<u>27,770,648</u>	<u>54.6</u>	<u>1,307,500</u>	<u>4.8</u>	<u>29,078,148</u>	<u>37.3</u>

Table 3.3 (Cont'd)

CMC District		ADA Firms		Non-ADA Firms		Total	
		\$	%	\$	%	\$	%
08	BY	1,831,374	6.82	152,915	.9	1,984,289	4.5
	FY	11,796,920	15.2	1,034,280	2.3	12,831,200	10.5
	<u>Change</u>	<u>9,965,546</u>	19.6	<u>881,365</u>	3.2	<u>10,846,911</u>	13.9
09	BY	11,622,900	43.3	0	--	11,622,900	26.5
	FY	15,394,500	19.8	425,000	1.0	15,819,500	13.0
	<u>Change</u>	<u>3,771,600</u>	7.4	<u>425,000</u>	1.6	<u>4,196,600</u>	5.4
11	BY	0	--	0	--	0	--
	FY	0	--	9,000	.02	9,000	.001
	<u>Change</u>	<u>0</u>	--	<u>9,000</u>	.03	<u>9,000</u>	.01
12	BY	0	--	11,501,000	67.8	11,501,000	26.3
	FY	0	--	17,450,219	39.6	17,450,219	14.3
	<u>Change</u>	<u>0</u>	--	<u>5,949,219</u>	21.9	<u>5,949,219</u>	7.6
Total							
	BY	26,839,082	100	16,959,615	100	43,798,697	100
	FY	77,675,353	100	44,083,107	100	121,758,460	100
	<u>Change</u>	<u>50,836,271</u>	100	<u>27,123,497</u>	100	<u>77,959,763</u>	100

show much effect in this survey.

Output changes registered by non-ADA plants were largest in the Bridgewater and Inverness CMC districts and relatively low in the districts showing the greatest expansion for ADA plants. While this difference in geographic origin of output for the two categories of plant is noteworthy it is difficult to explain except in terms of the dominating influence of particular projects in the data where total values are rather thin.

Table 3.4 distributes output by Standard Industrial Classifications. It is not surprising to note that the largest changes in output values for the ADA plants occurred in Fish Products (#111); Pulp and Paper Mills (#271); and Miscellaneous Textile Industries (#229); since these have already been noted as the major recipients of investment dollars. With the completion of the Heavy Water complexes on Cape Breton Island and the Petroleum Refineries, then classifications 378 (Manufacturers of Industrial Chemicals) and 365 (Petroleum Refineries) should rank high in growth of the value of output.

The total change in the value of output recorded for the survey plants (\$77,959,763) over the three year period is 26.6% of the total value of goods of own manufacture shown in Table 3.5 for all the designated areas in 1963. The change in value of output for the ADA plants alone is 17.8% of 1963 value of output. These are large but not overly impressive increases in view of the development needs of the region. Considering the number of new plants not yet in production, and the increases in output to be expected as new plants now producing expand their output closer to capacity levels

Table 3.4

Changes In Value of Manufacturing Output to 1967
by Standard Industrial Classification
Main Survey Firms

SIC	ADA Firms		Non-ADA Firms		Total	
	\$	%	\$	%	\$	%
103	0	--	350,539	1.3	350,539	.4
105	0	--	896,000	3.3	896,000	1.1
107	615,137	1.2	0	--	615,137	.8
111	4,719,198	9.3	14,339,719	53.9	19,058,917	24.4
112	456,500	.9	0	--	456,500	.6
123	745,832	1.5	450,000	1.7	1,195,832	1.5
129	0	--	231,573	.9	231,573	.3
139	1,090,000	2.1	0	--	1,090,000	1.4
141	0	--	120,000	.4	120,000	.2
143	450,000	.9	0	--	450,000	.6
147	0	--	0	--	0	--
163	147,000	.3	0	--	147,000	.2
172	297,000	.6	0	--	297,000	.4
174	0	--	75,000	.3	75,000	.09
179	0	--	67,000	.2	67,000	.08
229	4,900,000	9.6	0	--	4,900,000	6.3
239	150,000	.3	0	--	150,000	.2
243	755,000	1.5	0	--	755,000	1.0
246	0	--	43,000	.16	43,000	.05
251	130,777	.3	271,042	1.0	401,819	.5
254	765,000	1.5	262,500	1.0	1,027,500	1.3
259	0	--	52,473	.2	52,473	.06
266	230,000	.5	0	--	230,000	.3

Table 3.4 (Cont'd)

SIC	ADA Firms		Non-ADA Firms		Total	
	\$	%	\$	%	\$	%
271	29,915,000	58.9	5,900,000	21.8	35,815,000	45.9
273	431,472	.8	0	--	431,472	.6
274	1,302,000	2.6	177,000	.7	1,479,000	1.9
286	331,500	.7	100,000	.4	431,500	.6
289	0	--	80,000	.3	80,000	.1
291	-600,000	1.2	0	--	-600,000	.8
292	420,000	.8	0	--	420,000	.5
303	0	--	26,256	.09	26,256	.03
305	0	--	23,600	.08	23,600	.03
315	0	--	27,562	.1	27,562	.03
324	0	--	411,500	1.5	411,500	.5
325	0	--	500,509	1.8	500,509	.6
327	0	--	49,219	.2	49,219	.06
328	0	--	169,000	.6	169,000	.2
329	137,859	.3	0	--	137,859	.2
335	0	--	1,050,000	3.9	1,050,000	1.3
339	100,000	.2	0	--	100,000	.1
347	199,000	.4	1,450,000	5.3	1,649,000	2.1
353	24,000	.04	0	--	24,000	.03
357	602,467	1.2	0	--	602,467	.8
372	1,307,000	2.6	0	--	1,307,000	1.7
375	638,000	1.3	0	--	638,000	.8
378	592,229	1.2	0	--	592,229	.8
379	-15,700	.03	0	--	-15,700	.02
Total	50,836,271	100.0	27,123,492	100.0	77,959,763	100.0

Table 3.5

Nova Scotia, Principle Statistics of Manufacturing Activity: 1963
Estimated by CMC Districts

CMC Districts	Establishments	Production & Related Workers	Cost Fuel & Electricity	Cost Material & Supplies	Value: Goods of Own Manufacture	Average Wage Per Man-Hour
#	No.	Wages				
			-----'000-----			
01 Kentville	121	4,918	1,200	26,609	42,857	1.065
02 Bridgewater	100	3,579	301	12,360	20,121	1.25
03 Sydney Mines	15	2,118	304	4,762	8,667	2.19
04 Sydney	103	20,017	3,018	47,168	85,297	2.16
05 Truro	81	4,045	486	11,812	22,004	1.11
06 Amherst	39	2,289	245	5,345	10,630	1.41
07 New Glasgow	113	7,613	1,076	19,541	35,153	1.51
08 Yarmouth	149	4,591	740	17,012	28,834	1.17
09 Liverpool	61	4,254	1,140	11,844	25,283	1.53
10 Halifax	191	20,825	2,095	97,980	166,170	1.69
11 Springhill	19	1,128	121	2,633	5,236	1.41
12 Inverness	17	1,247	321	4,908	8,664	1.56
All Nova Scotia	1,009	76,624	11,047	261,974	458,915	1.58
All Designated Areas (N.S. less Halifax)	818	55,799	8,952	163,994	292,745	---

Source: Survey for the Counties of Nova Scotia, Department of Trade and Industry, Halifax, N.S.

NOTES: The survey data reports by counties whereas the information is presented here by Canada Manpower Centers. CMC district borders are not always contiguous with county borders so that in several cases it was necessary to divide county data between manpower centers by estimating the proportion of manufacturing activity in the county apt to fall on either side of the CMC border. The divisions assumed were as follows:

CMC District	Counties Included	CMC District	Counties Included
Kentville	Annapolis, Kings and 4/5 of Hants	New Glasgow	Pictou, Antigonish & Guysborough
Bridgewater	Lunenburg	Yarmouth	Digby, Yarmouth and 1/5 of sum of Queens and Shelburne
Sydney Mines	Victoria and 1/10 of Cape Breton	Liverpool	4/5 sum of Queens and Shelburne
Springhill	9/10 Cape Breton and 1/2 of sum of Inverness and Richmond	Halifax	Halifax
Truro	Colchester and 1/5 of Hants	Springhill	1/3 of Cumberland
Amherst	2/3 of Cumberland	Inverness	1/2 of sum of Inverness and Richmond

the rise in output should be much more impressive over the next few years. The "8 additional plants" forecast increases in output between 1967 and 1970 of \$43,945,000; the main survey plants (ADA) should show production increases of about \$30,000,000¹; and other plants (not included in the survey) might add another \$20,000,000 of output. On the whole it does not seem unreasonable to predict an increase in the value of output of ADA assisted plants in Nova Scotia of about \$140,000,000 by 1970, an increase which is close to 50% of the total value of goods of own manufacture produced in the designated areas in 1963. This estimate is made on the assumption of relatively constant prices and would be altered accordingly by inflationary trends.

Input Effects

The 80 survey firms reported an increase in the total value of inputs (main materials plus power and fuel) during the survey period of \$41,881,180, with the ADA assisted firms accounting for \$26,695,511 of this. Table 3.6 shows the total values of input changes for ADA firms, non-ADA firms and all reporting firms. Those firms providing an estimate of inputs in 1970, in Table 3.7, projected increases of 17.9% in the total value of inputs by that date and ADA firms alone estimated increases of 18.5%. These estimates

¹The estimates of value of output for 1970 were seriously distorted in the computer program employed so the figure suggested here is simply a reasonable guess made on the basis of a knowledge of the stages of production at which the ADA plants surveyed were at the time.

are neither complete nor particularly trustworthy, but if, in spite of these caveats, we apply the same percentage increases to all the survey firms, the total increase in the value of inputs for all the firms by 1970 would be \$49,377,911, and for the ADA firms it would be \$31,634,180.

Table 3.6

Change in Total Value of Inputs
80 Main Survey Firms Over Period 1962-67

Type of Input	ADA	Non-ADA	Total
Main Materials	24,708,351	14,891,604	39,599,955
Power & Fuel	1,987,160	294,065	2,281,225
Total	26,695,511	15,185,669	41,881,180

Table 3.7

Change in Total Value of Inputs
Main Survey Firms Reporting, Estimated for Period 1969-70

Type of Input	ADA		Non-ADA		Total	
	\$	% of '67	\$	% of '67	\$	% of '67
Main Materials	4,025,536	12.9	4,176,967	17.8	8,202,503	15.0
Power and Fuel	2,384,138	69.3	-19,857	-2.0	2,364,281	53.2
Total	6,409,674	18.5	4,157,110	17.0	10,566,784	17.9

Once again, since many firms receiving ADA assistance were in early stages of production, or had not commenced production at all and may have been omitted from the survey for that reason, the potential increase in the value of inputs is probably considerably underrated. The 8 additional plants (all ADA assisted) estimated an increase in the annual value of inputs in 1970 of \$13,515,000 over the 1967 total. It is not improbable that other non-ADA plants plus additional ADA assisted firms establishing since the survey may add as much again to the value of inputs.

Inputs: By Origin

The greater part of the inputs of main materials employed by the new or expanded plants covered in the survey originated in Nova Scotia and there was some tendency for this local proportion to increase during the survey period. Table 3.8 shows the distribution of inputs by origin and indicates that, in 1967, 69.2% of inputs overall originated in Nova Scotia as compared with 65.6% in the before year data. ADA assisted firms, however, tended to buy a smaller proportion of their inputs in Nova Scotia than did the non-ADA plants though the percent of local inputs for the ADA plants had increased considerably during the survey period (from 56.3% to 66.6%) while the percent of local inputs in non-ADA plants showed some decrease (from 78.7% to 73.4%). The ADA firms, on the other hand, tended to purchase a greater proportion of their input materials from Canadian sources outside the Atlantic Provinces than did the non-ADA firms (24.2% in 1967 as compared to 16% for non-ADA firms). In this case

Table 3.8

Origins of Inputs: Before Year and Final Year Purchases
Main Survey Firms to 1967
Main Materials

Class of Firms	Halifax County	Rest of N. S.	Other Atlantic Provinces	Rest of Canada	U.S.A.	Rest of World	Total	%
ADA Firms								
BY	400,251	6,892,593	334,942	4,544,978	37.1	69,800	12,245,564	100
FY	1,150,051	24,598,304	1,078,424	8,931,182	24.2	106,000	36,848,647	100
Non-ADA Firms								
BY	111,758	6,835,588	133,130	897,412	10.3	2,100	8,680,988	100
FY	582,829	17,251,024	836,400	3,750,201	16.0	33,900	23,500,754	100
Total								
BY	516,009	13,728,181	468,072	5,442,390	26.0	71,900	20,927,552	99
FY	1,732,880	41,849,328	1,914,824	12,681,383	21.0	139,900	60,449,401	100

the ADA plant dependence on the "rest of Canada" as a source of inputs showed sharp declines over the period of the survey and the non-ADA plants increased their dependence on the Canadian sources.

One might have expected that one reason the ADA firms showed less dependence on local suppliers of material inputs was that as new plants they had not yet developed a network of local suppliers and were more dependent on established sources in other parts of the country. In Table 3.9, however, where a distinction has been made between the origin of inputs in new versus established plants, it is evident that it is the new ADA plants that are most dependent on local sources for material inputs, and the established ADA plants undergoing expansions or other alterations during the period that were much more dependent on material inputs from outside the region. The evidence from the earlier chapter on Capital Investment showed that the largest investments went to firms employing the forest and fishing resources of the province (and thus bound to be heavy users of local inputs) and, since many of these were new plants, the dependence of the "New Firms" category on local inputs is largely explained. Why the older ADA firms should be so different, and why the non-ADA established firms should be so different from the ADA firms with respect to dependence on local inputs is difficult to understand. The dominance of particular firms in the data may be the best explanation. It is clear, in any event, that locally produced inputs are a very significant part of the total inputs employed by both the ADA firms and the non-ADA firms and one might infer from this that strong linkage effects on the local economy must follow the expansions induced or undertaken during the survey period.

Table 3.9

Percentage Distribution of Inputs By Origin
New Firms and Established Firms
80 Main Survey Plants: 1967

Class of Firms	Halifax County %	Rest of N.S. %	Other Atlantic Provinces %	Rest of Canada %	U.S.A. %	Rest of World %	Total %
I New Firms							
ADA Firms	0.8	74.5	2.8	16.7	5.1	0	99.9
Non-ADA Firms	3.6	71.4	2.4	22.0	0.2	0.3	99.9
Total	1.7	73.5	2.7	18.4	3.5	0.1	99.9
II Established Firms							
ADA Firms	6.3	55.5	3.1	34.5	0.0	0.7	100.1
Non-ADA Firms	1.6	75.0	4.4	11.3	7.7	0.0	100.0
Total	4.1	64.5	3.7	23.8	3.6	0.4	100.1

Inputs: Backward Linkage Effects

The concept of a backward linkage effect emerging from the establishment or expansion of a particular industrial activity depends on the employment as inputs of the outputs of other plants or, possibly, of the resources or services produced in other sectors of the economy. In its broadest sense the concept is close to that of the "multiplier" since it would trace out all those effects on output--and consequently on incomes and employment created in the production process--which could be linked in any way (forward or backward) to the particular industrial activity considered. This involves knowing not only the level of activity in all those plants or sectors linked to the first plant but also the degree of the dependence of second, third, etc., order plants on the original activity in order to assign appropriate values to the actual linked effects. In this study the linked effects considered have been solely to the first order links. An attempt was made to gather information from the linked plants regarding their second order links to other plants and to impute the degrees of importance of the links, but the responses to the questionnaire were unsatisfactory, and the amounts involved appeared too small to justify further effort.

Table 3.10 indicates the linkage effects discovered between the main survey plants and other manufacturers in Nova Scotia allocated by CMC districts. In Chapter IV, linkage effects on employment and income are estimated employing this data, but at this point the intention is only to reveal the dollar value of the inputs originating with the manufacturing sector of Nova Scotia. The first

Table 3.10

Backward Linkage Effects: Main Survey
Plants to Other Manufacturers In Nova Scotia

Change in Purchase of Manufactured Goods						
CMC	ADA		Non-ADA		All	
	\$	%	\$	%	\$	%
01 BY	504,975	47.4	897,000	62.5	1,401,975	56.1
FY	1,714,700	25.5	959,000	58.4	2,673,700	31.9
Change	1,209,725	21.4	62,000	29.9	1,271,725	21.7
04 BY	47,840	4.5	16,000	1.1	63,840	2.6
FY	80,500	1.2	46,000	2.8	126,500	1.5
Change	32,660	.6	30,000	14.5	62,660	1.1
05 BY	74,000	6.9	2,000	.1	76,000	3.0
FY	148,985	2.2	32,450	2.0	181,435	2.2
Change	74,985	1.3	30,450	14.7	105,435	1.8
06 BY	11,420	1.1	33,410	2.3	44,830	1.8
FY	23,625	.4	92,195	5.6	115,820	1.4
Change	12,205	.2	58,785	28.3	70,990	1.2
07 BY	--	--	36,000	2.5	36,000	1.4
FY	238,000	3.5	74,000	4.5	312,000	3.7
Change	238,000	4.2	38,000	18.3	276,000	4.7
08 BY	27,717	2.6	2,263	.2	30,040	1.2
FY	3,534,650	52.6	9,340	.6	3,543,990	42.4
Change	3,506,873	62.0	7,077	3.4	3,513,950	60.0
09 BY	--	--	111,360	7.8	111,360	4.5
FY	42,000	.6	57,375	3.5	99,375	1.2
Change	42,000	.7	-53,985	-26.0	-11,985	-.2
10 BY	399,925	37.5	336,048	23.4	735,973	29.4
FY	936,712	13.9	371,112	22.6	1,307,824	15.6
Change	536,787	9.5	35,064	16.9	571,851	9.8
Total BY	1,065,877	100.0	1,434,081	100.0	2,500,018	100.0
FY	6,719,172	100.0	1,641,472	100.0	8,360,644	100.0
Change	5,653,235	100.0	207,391	100.0	5,860,626	100.0

observation must be that only a small part of main material inputs in the survey firms consisted of manufactured products of Nova Scotian firms. For all the firms, \$2,500,018 of inputs from linked firms in the province is noted out of \$20,927,552 of main material inputs in the "before year", that is 11.9% of the inputs. This becomes \$8,360,644 out of \$60,449,401 in the "final year", or 13.8% of the main material inputs. For ADA firms alone 8.7% of main material inputs were purchased from Nova Scotia manufactures in the before year, and 18.2% in the final year; for non-ADA firms the figures were 16.5% and 7.0% respectively. It is particularly interesting to note the ADA assisted firms showed considerable increases in the amount of locally manufactured input employed in production over the survey period, leading to the conclusion that local linkage effects out of manufacturing activity in the province may have been considerably strengthened by the ADA program. The conclusion is supported by noting that in plants not assisted the tendencies were in the opposite direction.

The distribution of the linkage effects by CMC districts is also given in Table 3.10. The Kentville region and the Halifax region were the major recipients of linkage effects in the before and after years, and for both ADA and non-ADA firms. The Yarmouth district appears as the major recipient of linked effects in the final year due largely to sales within branches of a single firm in the county. Purchases in the non-designated area, the Halifax CMC district, were spread over a large number of firms and were generally quite small; the data does not support the view of Halifax as a major manufacturing

center supporting other industries located elsewhere in the province. Again, the later developments of industries assisted by the ADA program might substantially alter these results.

A premise in many regional studies is that the reason for the growth of a region lies in the goods that it produces locally but sells beyond its borders. From the sale of these basic goods comes the means of paying for the raw materials, food and manufactured goods the region cannot produce itself as well as the services which can be provided within the region. From the data collected on the regional distribution of outputs and the regional origins of inputs some estimate can be made of this net injection of money into the economy of Nova Scotia from the activities of the main survey plants. In Table 3.11 the net value of injections and the value of the net injections per dollar of total sales has been computed for the ADA plants, the non-ADA plants and for the total main survey plants, with comparisons of before and final years. The results provide only a rough estimation because they undoubtedly underestimate the value of inputs purchased outside the province since they neglect any foreign content in locally purchased goods and make no allowance for interest and dividend payments outside the region; the net injection of cash resulting from the activities of these plants is really only the initial injection as a net balance on current sales and purchases. The figures do provide some comparison information of interest, however, inasmuch as each classification in the table shares the same weaknesses. Thus it appears that the ADA assisted firms tended to make larger injections to the

Table 3.11

Net Cash Injection Effects From New Industrial Activity
Main Survey Plants, Before Year and Final Year (1967)

	ADA Frims BY	FY	Non-ADA Frims BY	FY	All Sample Frims BY	FY
\$ Value of Sales External to N.S.	19,558,623	64,046,919	12,479,324	31,140,939	32,037,947	95,187,858
% of Total Sales	71.8	82.3	73.6	71.3	72.5	78.3
\$ Value of Inputs External to N.S.	4,949,720	11,200,292	1,733,642	5,666,901	6,683,362	16,867,193
% of Total Inputs	40.4	30.3	20.0	24.1	31.9	27.9
Net Injection (External Sales minus External Inputs)	14,608,903	52,846,627	10,745,682	25,474,038	25,354,585	78,320,665
Net Injections per dollar of Total Sales	53.7	67.9	63.3	58.3	57.4	64.4

Table 3.12

Net Cash Injections by SIC Numbers
ADA Assisted Plants, Before Year and After Year (1967)

SIC #	(1) Value of Sales External to N.S.	(2) Value of Inputs External to N.S.	(3) Net Injection (1) - (2)	(4) Net Injection Per \$ of Total Sales (3) ÷ (Total Sales)
107 BY	--	--	--	--
FY	267,133	--	267,133	60.0
111 BY	713,941	3,842	710,099	99.0
FY	3,826,335	4,350	3,821,985	74.8
112 BY	1,006,400	159,845	846,555	39.8
FY	506,400	639,845	-133,445	-5.1
123 BY	--	308,200	-308,200	-76.4
FY	--	828,450	-828,450	-72.9
139 BY	400,000	517,000	-117,000	-11.7
FY	1,036,000	756,000	280,000	13.4
143 BY	335,000	770,850	-435,850	-34.9
FY	615,100	876,960	-261,860	-16.8
163 BY	13,860	44,073	-30,213	-39.2
FY	26,460	78,000	-51,540	-35.1
172 BY	--	--	--	--
FY	305,387	45,400	259,987	85.1
229 BY	--	--	--	--
FY	4,786,000	400,000	4,386,000	91.6
239 BY	368,000	82,000	286,000	71.5
FY	450,000	151,500	298,500	59.7
243 BY	--	--	--	--
FY	710,600	155,000	555,600	74.3
254 BY	--	--	--	--
FY	494,650	378,000	116,650	15.3
266 BY	393,600	292,320	101,280	15.4
FY	443,000	430,200	12,800	1.4

Table 3.12 (Cont'd)

SIC #	(1) Value of Sales External to N.S.	(2) Value of Inputs External to N.S.	(3) Net Injection (1) - (2)	(4) Net Injection Per \$ of Total Sales (3) ÷ (Total Sales)
271 BY	10,651,280	778,240	9,873,040	84.1
FY	40,935,000	3,344,350	37,590,650	88.6
273 BY	--	--	--	--
FY	288,778	212,875	75,903	12.6
274 BY	3,707,500	610,350	3,097,150	76.7
FY	4,911,100	790,300	4,120,800	76.9
286 BY	35,088	91,700	-56,612	-14.3
FY	60,660	128,007	-67,347	-9.2
291 BY	268,100	927,000	-658,900	-24.6
FY	1,013,760	110,000	903,760	42.8
339 BY	--	27,000	-27,000	-45.0
FY	97,600	49,778	47,822	29.9
353 BY	56,880	47,800	9,082	5.7
FY	72,800	50,000	22,800	12.5
357 BY	--	--	--	--
FY	120,057	439,201	-319,144	-265.0
372 BY	--	--	--	--
FY	228,437	877,929	-649,492	-52.6
375 BY	--	--	--	--
FY	189,000	211,650	-22,650	-3.6
378 BY	869,774	144,000	725,774	83.4
FY	885,000	153,697	731,303	53.5
379 BY	172,000	145,500	26,500	15.4
FY	148,700	88,800	59,900	40.3
Total BY	18,991,423	4,949,720	14,023,541	100.0
FY	62,417,957	11,200,292	51,217,665	100.0

Table 3.13

Net Cash Injections by SIC Numbers
Non-ADA Plants, Before Years and Final Year (1967)

SIC #	(1) Value of Sales External to N.S.	(2) Value of Inputs External to N.S.	(3) Net Injection (1)-(2)	(4) Net Injection Per \$ of Total Sales (3) ÷ (Total Sales)
103 BY	354,245	36,000	318,245	13.5
FY	406,826	36,000	370,826	13.7
105 BY	--	68,000	-68,000	-7.0
FY	--	124,000	-124,000	-6.6
111 BY	141,165	--	141,165	95.4
FY	10,612,309	1,310,000	9,302,309	65.4
123 BY	--	125,000	-125,000	-41.7
FY	--	573,400	-573,400	-76.5
129 BY	--	39,472	-39,472	-45.6
FY	--	83,710	-83,710	-26.3
141 BY	--	--	--	--
FY	--	32,000	-32,000	-26.7
174 BY	--	--	--	--
FY	74,250	28,500	45,750	66.3
179 BY	463,250	154,200	309,050	56.7
FY	504,000	177,300	326,700	58.3
246 BY	--	30,840	-30,840	-46.0
FY	20,250	51,000	-30,750	-22.8
251 BY	207,664	--	207,664	28.0
FY	224,249	--	224,249	23.0
254 BY	27,000	--	27,000	25.0
FY	82,000	--	82,000	22.8
271 BY	11,286,000	1,265,000	10,021,000	87.9
FY	17,127,000	2,023,400	15,103,600	87.3
274 BY	--	--	--	--
FY	2,760	--	2,760	1.5

Table 3.13 (Cont'd)

SIC #	(1) Value of Sales External to N.S.	(2) Value of Inputs External to N.S.	(3) Net Injection (1) - (2)	(4) Net Injection Per \$ of Total Sales (3) ÷ Total
286 BY	--	--	--	--
FY	--	25,200	-25,200	-25.2
303 BY	--	7,000	-7,000	-18.1
FY	16,504	18,300	-1,796	-2.7
305 BY	--	--	--	--
FY	4,180	4,000	180	.8
324 BY	--	--	--	--
FY	390,925	68,400	322,525	78.4
325 BY	--	--	--	--
FY	250,254	124,691	125,563	25.1
327 BY	--	8,130	-8,130	-8.1
FY	--	13,000	-13,000	-8.7
328 BY	--	--	--	--
FY	118,400	74,000	44,400	26.3
335 BY	--	--	--	--
FY	--	650,000	-650,000	-68.4
347 BY	--	--	--	--
FY	362,500	250,000	112,500	7.8
Total	42,675,731	7,400,543	35,275,188	100.0
BY	12,479,324	1,733,642	10,745,678	100.0
FY	30,196,407	5,666,901	24,529,506	100.0

local economy than did the non-ADA control group plants in the final year of the survey whereas the reverse was true in the initial year. A conclusion that might be reached (and it is generally supported by the evidence of Tables 3.8 and 3.10) would be that the ADA program has succeeded in attracting plants to Nova Scotia which have a relatively high capacity to inject net cash inflows for the province--or, with more tenuous proof, firms which might be expected to show quite a high basic-non-basic multiplier effect on the Nova Scotian economy. Tables 3.12 and 3.13 provide a breakdown of the same information by standard industrial classifications for ADA firms and non-ADA firms respectively.

Inputs: Some Structural Effects

The last tables appended to this chapter provide additional information about changes in the pattern of inputs during the survey' period, with some estimates for 1970. Table 3.14 breaks down the changes in the value of inputs of main materials by Standard Industrial Classifications to 1967, and Table 3.15 breaks down the estimated percent change in the value of inputs of main materials between 1967 and 1970 by SIC numbers as well. Finally, Table 3.16 provides a breakdown by SIC numbers of the origins of inputs during the survey period.

Table 3.14

Change in Value of Inputs of Main Materials to 1967
by Standard Industrial Classifications
Main Survey Firms

SIC	ADA Firms		Non-ADA Firms		Total	
	\$	%	\$	%	\$	%
103	0		201,602	1.4	201,602	.5
105	0		441,300	2.9	441,300	1.1
107	526,000	2.1	0		526,000	1.3
111	2,318,042	9.4	8,883,684	59.8	11,201,726	28.3
112	768,300	3.1	0		768,300	1.9
123	591,029	2.4	323,400	2.2	914,429	2.3
129	0		98,042	.7	98,042	.2
139	494,000	2.0	0		494,000	1.2
141	0		47,000	.3	47,000	.1
143	124,960	.5	0		124,960	.3
147	0		0		0	
163	78,000	.3	0		78,000	.2
172	233,150	.9	0		233,150	.6
174	0		28,500	.2	28,500	.07
179	0		23,100	.2	23,100	.05
229	3,700,000	14.9	0		3,700,000	9.4
239	69,500	.3	0		69,500	.2
243	271,000	1.1	0		271,000	.7
246	0		20,120	.1	20,120	.05
251	30,140	.1	48,823	.3	78,963	.2
254	388,000	1.6	204,400	1.4	592,400	1.5
259	0		4,476	.03	4,476	.01
266	154,000	.6	0		154,000	.4
271	12,532,996	50.7	2,894,600	19.5	15,427,596	39.0
273	300,186	1.2	0		300,186	.8
274	421,008	1.7	62,000	.4	483,008	1.2
286	74,115	.3	25,200	.2	99,315	.3
289	0		3,200	.02	3,200	.01
291	-377,000	-1.5	0		-377,000	-.7
292	238,000	1.0	0		238,000	.6
303	0		16,900	.1	16,900	.04
305	0		4,000	.02	4,000	.01
315	0		-24		-24	
324	0		174,400	1.2	174,400	.4
325	0		215,781	1.5	215,781	.5
327	0		32,800	.2	32,800	.08
328	0		74,000	.5	78,000	.2
329	64,607	.3	0		64,607	.2
335	0		650,000	4.4	650,000	1.6
339	29,957	.1	0		29,957	.07
347	86,785	.4	381,500	2.6	468,285	1.2
353	2,200	.01	0		2,200	.01
357	450,201	1.8	0		450,201	1.1
372	921,528	3.7	0		921,528	2.3
375	264,650	1.1	0		264,650	.7
378	9,697	.03	0		9,697	.02
379	-56,700	-.2	0		-56,700	-.1
TOTAL	24,708,351	100	14,858,804	100	39,571,155	100

Table 3.15

Estimated Percent Change in Value of Inputs of Main Materials, 1967 to 1970
by Standard Industrial Classifications
Main Survey Firms Reporting Estimates

SIC	ADA Firms %	Non-ADA Firms %	Total %
103	0	1	1
105	0	45.4	45.4
107	52.1	0	52.1
111	36.2	7.3	13.1
112	39.3	0	39.3
123	33.8	48.2	39.2
129	0	32.6	32.6
139	50.7	0	50.7
141	0	0	0
143	-75.4	0	-75.4
147	0	∞	∞
163	28.2	0	28.2
172	118.7	0	118.7
174	0	193	193.0
179	0	12.8	12.8
229	0	0	0
239	32.0	0	32.0
243	29.2	0	29.2
246	0	20.0	20.0
251	3.8	0	1.9
254	47.0	25.0	38.9
259	0	302.1	302.1
266	15.1	0	15.1
271	-1.8	13.7	3.1
273	90.9	0	90.9
274	12.5	33.3	20.0
286	56.4	0	56.4
289	0	25.0	25.0
291	66.5	0	66.5
292	0	0	0
303	0	33.8	33.8
305	0	25.0	25.0
315	0	20.0	20.0
324	0	14.7	14.7
325	0	103.9	103.9
327	0	25.9	25.9
328	0	91.9	91.9
329	101.2	0	101.2
335	0	130.8	130.8
339	280.5	0	280.5
347	71.2	4.8	25.8
353	0	0	0
357	44.4	0	44.4
372	4.5	0	4.5
375	13.4	0	13.4
378	92.6	0	92.6
379	35.1	0	35.1

Table 3.16
Distribution of Inputs by Place of Origin
Main Survey Plants by Standard Industrial Classification
Before Year and Final Year (1967)

% of Total Input by Place of Origin

Sic #	Halifax County		Rest of N.S.		Other Atlantic		Rest of Canada		U.S.		Rest of World	
	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA
103 BY	--	1.5	--	96.6	--	--	--	--	--	1.9	--	--
FY	--	1.4	--	96.8	--	--	--	1.8	--	--	--	--
105 BY	--	--	--	88.4	--	--	--	11.6	--	--	--	--
FY	--	--	--	88.0	--	--	--	12.0	--	--	--	--
107 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	7.2	--	92.8	--	--	--	--	--	--	--	--	--
111 BY	4.7	3.2	94.2	96.8	--	--	1.1	--	--	--	--	--
FY	0.6	3.2	99.2	82.2	--	--	0.2	14.6	--	--	--	--
112 BY	5.0	--	75.4	--	1.0	--	18.6	--	--	--	--	--
FY	12.5	--	47.7	--	0.5	--	39.3	--	--	--	--	--
123 BY	--	--	18.0	50.0	82.0	50.0	--	--	--	--	--	--
FY	6.7	--	7.6	--	77.2	100.0	8.4	--	--	--	--	--
129 BY	--	22.4	--	--	--	--	--	77.6	--	--	--	--
FY	--	2.7	--	41.1	--	--	--	56.2	--	--	--	--
139 BY	10.8	--	35.7	--	--	--	53.5	--	--	--	--	--
FY	10.3	--	37.9	--	--	--	51.8	--	--	--	--	--
141 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	--	31.9	--	--	--	--	--	68.1	--	--	--	--
143 BY	1.7	--	3.1	--	0.1	--	95.1	--	--	--	--	--
FY	2.2	--	4.0	--	0.1	--	93.7	--	--	--	--	--
163 BY	--	--	--	--	--	--	100.0	--	--	--	--	--
FY	--	--	--	--	--	--	100.0	--	--	--	--	--
172 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	--	--	--	--	19.5	--	--	--	--	--	--	--
174 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	--	--	--	--	--	--	--	100.0	--	--	--	--

Table 3.16 (Cont'd)

% of Total Input by Place of Origin

Sic #	Halifax County		Rest of N.S.		Other Atlantic		Rest of Canada		U.S.		Rest of World	
	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA
179 BY	--	--	--	--	--	--	98.6	--	--	--	--	1.4
FY	--	--	80.5	--	--	--	--	--	--	--	--	--
229 BY	--	--	--	--	19.5	--	--	--	--	--	--	--
FY	--	--	89.2	--	--	--	--	--	--	--	--	--
239 BY	--	--	--	--	--	--	5.4	5.4	--	--	--	--
FY	--	--	--	--	--	--	51.2	--	--	--	48.8	--
243 BY	--	--	--	--	--	--	50.5	--	--	--	49.5	--
FY	--	--	--	--	--	--	--	--	--	--	--	--
246 BY	3.9	--	40.9	--	1.8	--	53.4	--	--	--	--	--
FY	--	--	--	--	--	--	--	--	--	--	--	--
251 BY	--	--	--	--	--	--	100.0	100.0	--	--	--	--
FY	--	--	100.0	100.0	--	--	100.0	--	--	--	--	--
254 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	--	--	2.7	100.0	--	--	--	--	97.3	--	--	--
259 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	--	--	--	100.0	--	--	--	--	--	--	--	--
266 BY	--	--	10.0	--	--	--	--	--	--	--	--	--
FY	--	--	10.0	--	--	--	90.0	--	--	--	--	--
271 BY	--	--	86.1	75.5	--	--	90.0	--	--	--	--	--
FY	--	1.0	81.5	73.8	--	--	13.9	11.6	--	12.9	--	--
273 BY	--	--	--	--	--	--	18.5	12.4	--	12.7	--	--
FY	--	--	29.1	--	--	--	--	--	--	--	--	--
274 BY	16.2	--	37.8	100.0	--	--	70.9	--	--	--	--	--
FY	16.4	--	38.2	100.0	--	--	46.0	--	--	--	--	--
286 BY	5.0	--	--	--	--	--	45.3	--	--	--	--	--
FY	4.3	--	23.6	--	18.7	--	76.4	--	--	--	--	--
289 BY	--	--	--	--	14.1	--	49.5	100.0	8.4	--	--	--
FY	--	84.4	--	--	--	--	--	--	--	--	--	--
291 BY	--	--	--	15.6	--	--	--	--	--	--	--	--
FY	40.0	--	40.0	--	20.0	--	100.0	--	--	--	--	--

Table 3.16 (Cont'd)

% of Total Input by Place of Origin

Sic #	Halifax County		Rest of N.S.		Other Atlantic		Rest of Canada		U.S.		Rest of World	
	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA	ADA	Non-ADA
375 BY	--	--	--	--	--	--	--	--	--	--	--	--
FY	20.0	--	--	--	--	--	8.0	--	--	--	--	--
378 BY	--	--	--	--	--	--	100.0	--	--	--	--	--
FY	--	--	--	--	--	--	100.0	--	--	--	--	--
379 BY	--	--	--	--	--	--	100.0	--	--	--	--	--
FY	--	--	--	--	--	--	100.0	--	--	--	--	--

Chapter IV

Employment and Income Effects

The ultimate criteria of the effectiveness of the ADA program are the employment and income effects which the incentives produce in the economy. This chapter attempts to identify the net effects on these key variables through plants receiving ADA assistance and compare these with changes observed in non-ADA plants and with data provided from government agencies for net changes in employment and income in the entire economy. Such an analysis requires the use of multiplier estimates to trace tertiary effects generated out of the direct and indirect employment and income effects and results of the Atlantic Development Board's efforts to provide an input-output model of the Nova Scotian economy are utilized for this purpose.

Employment Effects

The total net employment induced through ADA assistance is the sum of net employment induced in assisted plants (direct employment) plus the net employment induced through backward and forward linkages (indirect employment) plus the net employment induced through multiplier effects in the tertiary economic structure. Employment figures should be net of new employment due to causes other than the ADA program and should subtract employment replaced or made obsolete as a result of the program. New employment due to other causes

would include employment changes due to such things as:

- changes in market demand which would have led to employment changes in the absence of any assistance;
- technological changes affecting capital-labour ratios, resulting from causes other than that associated with the ADA incentive;
- alterations in plant limits

The specification of the definitional problems of estimating employment is made as a reminder that the actual employment figures may be defective because of the inability to measure carefully the net values. The data utilized is taken largely from the main survey material which records simply the average employment in the interview plant in the twelve month period before assistance was received (or in 1962 if no assistance was received) and in the last twelve months, or since the production change--which ever period is shorter. No allowance is made for changes due to other causes or for numbers obsoleted or replaced outside the plant as a result of changes within the plant. In effect, we have partial measures of employment changes during the period of the ADA assistance program for assisted and non-assisted plants, but we do not necessarily have information to establish the causal relationship between the program and the employment changes noted. Some further comments on this will be made in Chapter V. Additional information as "reconciliation data" is provided from the ADA "Summary of the ADA program to July 30, 1968" which lists "job opportunities" estimated

by assisted plants, and from the National Employment Service records.

The Direct Impact on Employment

ADA assisted firms employed 3316 wage earners and salaried employees in the final year of the survey (1967) which represented an increase of 1554 jobs over the beginning year employment totals for this group of plants. The 8 additional ADA plants reported increased employment of 741 (though some of these appear to be employment figures for 1968, actual or expected) which would make a total of 2295 new jobs created in ADA assisted plants during the survey period. Table 4.1 sums up the overall employment data for the Main Survey plants. It is interesting to note that, despite the employment creating goal of the ADA program and the much larger sample of ADA firms, almost as many jobs were created in the non-ADA group of plants (in the main survey group, 49.1% of the total new jobs as compared with 50.9% in the ADA group). The number of ADA grants that went to very small concerns with little job making potential is emphasized by this statistic but it is also true that much of the expected employment changes in the ADA plants had not yet been fully achieved at the time of the survey. The cost of a job in terms of dollars of new investment undertaken in the survey period is also extremely high for the ADA plants: in the main survey group the cost was \$59,125 per job for ADA plants and \$14,517 for non-ADA plants.¹ The main survey plants estimated that approximately

¹The cost per job estimate is obtained by dividing total investment in fixed assets for the ADA and non-ADA samples in Table 2.1 by the total changes in employment in the ADA and non-ADA samples in Table 4.1. When the 8 additional plants are included the cost per

Table 4.1

Changes In Employment, Main Survey Plants

	Wage Earners		Salaried Employees		Total	
	#	%	#	%	#	%
ADA Firms						
BY	1,385	70.0	272	62.4	1,762	69.9
FY	2,605	58.5	607	59.9	3,316	59.5
Change	1,220	49.4	335	58.0	1,554	50.9
Non-ADA Firms						
BY	594	30.0	164	37.6	757	30.1
FY	1,846	41.5	407	40.1	2,256	40.5
Change	1,252	50.6	243	42.0	1,499	49.1
Total						
BY	1,979	100	436	100	2,519	100
FY	4,451	100	1,014	100	5,572	100
Change	2,472	100	578	100	3,053	100

Table 4.2

Employment Changes, Main Survey Plants
by CMC Districts
Actual Jobs Reported In Main Survey Plants

CMC #	Job Opportunities Reported (in ADA Firms) ¹	ADA Firms		Non-ADA		Total	
		#	%	#	%	#	%
01	526	137	8.8	31	2.1	168	5.5
02	1,027	5	.3	610	40.7	615	20.1
03	0	4	.3	0	0.0	4	.1
04	970	83	5.3	538	35.9	621	20.3
05	236	33	2.1	74	4.9	107	3.5
06	276	128	8.2	3	.2	131	4.3
07	1,344	366	23.7	62	4.1	428	14.0
08	469	676	43.5	68	4.5	744	24.4
09	102	122	7.8	122	8.1	244	8.0
11	209	0	0.0	3	.2	3	.1
12	<u>0</u>	<u>0</u>	<u>0.0</u>	<u>-12</u>	<u>-8</u>	<u>-12</u>	<u>-4</u>
Total	5,159	1,554	100.0	1,499	100.0	3,053	100.0

¹ Job opportunities reported are taken from information supplied for purposes of this study by the Area Development Agency. The figures are estimates of actual and potential job openings in the plants reporting and not of actual jobs created at the time of writing.

1000 extra jobs would be created as they expended production closer to capacity by 1970. Employing the same investment figure as before this gives a cost of \$35,975 per job--a more realistic, but still high, cost of employment.

Tables 4.2 and 4.3 show, respectively, the CMC districts in which employment changes occurred and the SIC breakdown of employment changes. As Table 4.2 indicates the principle employment effect of ADA assistance have been felt in the Yarmouth, New Glasgow, Kentville and Liverpool CMC districts, which have already been noted as the major areas for investment and output changes. Non-ADA plants again produced most of their effects on the other CMC districts. The total employment created in ADA plants falls far short of the "job opportunities" as reported to the Area Development Agency by firms receiving or seeking assistance. This is, nevertheless, not as surprising as it first appears: the survey records actual jobs created in firms interviewed, while the "job opportunity" reports are estimates of potential jobs by firms reporting to ADA. Many more jobs have opened up or will open up as ADA plants get into production or nearer to capacity output and actual ADA plant employment figures will move closer to the "job opportunity" estimate. It may, however, be over hopeful to expect that all the opportunities reported by client firms will actually be realized.

Little comment seems needed for the information in Table 4.3. The largest ADA employers were in Miscellaneous Textiles (SIC #229) and Pulp and Paper (SIC #271) with Fish Products (SIC #111) a distant third. Major non-ADA employers were in Fish Products and Communications

job in the total ADA sample becomes \$84,490, but this is an even more deceptive figure since the additional plants were just beginning operation and far short of their employment potential.

Table 4.3

Employment Changes, Main Survey Plants
by SIC (Before Year to Final Year)

SIC #	ADA Firms		Non-ADA		Total	
	#	%	#	%	#	%
103	--	--	.5	.3	5	.2
105	--	--	17	1.1	17	.6
107	14	.9	--	--	14	.5
111	78	5.0	746	49.8	824	27.0
112	-4	-.3	--	--	-4	-.1
123	11	.7	12	.8	23	.8
129	--	--	16	1.1	16	.5
139	20	1.3	--	--	20	.7
141	--	--	8	.5	8	.3
143	15	1.0	--	--	15	.5
147	--	--	2	.1	2	.1
163	2	.1	--	--	2	.1
172	11	.7	--	--	11	.4
174	--	--	22	1.5	22	.7
179	--	--	3	.2	3	.1
229	541	34.8	--	--	541	17.7
239	10	.6	--	--	10	.3
243	61	3.9	--	--	61	2.0
246	--	--	--	--	--	--
251	18	1.2	8	.5	26	.9
254	35	2.3	28	1.9	63	2.1
259	--	--	7	.5	7	.2
266	5	.3	--	--	5	.2
271	415	26.7	-20	-1.3	395	12.9
273	21	1.4	--	--	21	.7
274	57	3.7	15	1.0	72	2.4
286	56	3.6	12	.8	68	2.2
289	--	--	11	.7	11	.4
291	7	.5	--	--	7	.2
292	9	.6	--	--	9	.3
303	--	--	4	.3	4	.1
305	--	--	3	.2	3	.1
315	--	--	-13	-.9	-13	-.4
324	--	--	45	3.0	45	1.5
325	--	--	35	2.3	35	1.1
327	--	--	8	.5	8	.3
328	--	--	13	.9	13	.4
329	6	.4	--	--	6	.2
335	--	--	500	33.4	500	16.4
339	11	.7	--	--	11	.4
347	14	.9	12	.8	26	.9
353	3	.2	--	--	3	.1
357	75	4.8	--	--	75	2.5

Table 4.3 (Cont'd)

SIC #	ADA Firms		Non-ADA Firms		Total	
	#	%	#	%	#	%
372	21	1.4	--	--	21	.7
375	28	1.8	--	--	28	.9
378	13	.8	--	--	13	.4
379	1	.06	--	--	1	.03
Total	1,554	100	1,499	100	3,053	100

Equipment (SIC #335). In all these cases, excepting ADA employment in Fish Products, the employment bulges are dominated by jobs created as the result of single firms in each category establishing during the period.

Structural Changes in Employment

A favourable structural shift in employment would include improvements in the ratio of skilled to unskilled jobs and the ratio of local to outside labour employed. It is less clear how to describe a shift in the ratio of male to female workers. Participation rates for females are lower than the national average and considerably lower than those found in the more industrially advanced parts of Central Canada--hence developments which open relatively more jobs for women than men may seem desirable. On the other hand industrial development which largely expands only the low wage female occupations, perhaps even at the expense of some higher wage male occupations, is probably less desirable than one which develops more higher wage male occupations. The results will show up in movements of the average wage structure as the employment changes occur.

Table 4.4 shows the overall qualitative shifts in employment for the main survey plants during the period. For the ADA plants approximately three out of each ten employees were female before the program, as compared to one out of ten for the non-ADA sample. At the end of the survey period the ratio in ADA plants showed only slight change (3.5 females out of ten) while the non-ADA plants had

Table 4.4

Qualitative Effects on Employment, Wage and Salaried
Main Survey Plants: Before Year and Final Year (1967)

Ratio	ADA	Non-ADA	Total
Male:Female			
BY	1:0.308	1:0.102	1:0.235
FY	1:0.356	1:0.473	1:0.402
Skilled:Unskilled			
BY	1:0.425	1:0.489	1:0.443
FY	1:0.231	1:0.591	1:0.358
Local:External			
BY	1:0.012	1:0.125	1:0.043
FY	1:0.045	1:0.030	1:0.039

Table 4.5

Ratio of Male to Female Wage Earners
Main Survey Plants, Before Year and Final Year (1967)
By CMC

CMC	Male:Female Wage Earners					
	ADA	Before Year Non-ADA	Total	ADA	Final Year Non-ADA	Total
01	1:0.750	1:0.218	1:0.640	1:0.696	1:0.179	1:0.589
02	--	--	--	1:00	1:0.476	1:0.469
03	--	--	--	1:00	--	1:00
04	--	1:1.00	1:1.00	1:00	1:4.671	1:2.617
05	1:00	1:0.024	1:0.021	1:0.027	1:0.013	1:0.016
06	1:00	1:0.364	1:0.026	1:0.178	1:0.240	1:0.182
07	1:0.197	1:0.150	1:0.185	1:0.044	1:0.054	1:0.046
08	1:1.025	1:0.154	1:0.903	1:0.791	1:0.500	1:0.757
09	1:0.018	--	1:0.018	1:0.022	1:0.785	1:0.126
11	--	--	--	--	1:00	1:00
12	--	1:0.006	1:0.006	--	1:0.009	1:0.009
Total	1:0.307	1:0.065	1:0.223	1:0.338	1:0.533	1:0.412

Table 4.6

Ratio of Male to Female Wage Earners
Main Survey Plants, Before Year and Final Year (1967)
By SIC

SIC #	Before Year			Final Year		
	ADA	Non-ADA	Total	ADA	Non-ADA	Total
103	--	1:0.256	1:0.256	--	1:0.256	1:0.256
105	--	1:0.256	1:0.150	--	1:0.118	1:0.118
107	--	--	--	1:0.083	--	1:0.083
111	1:0.738	1:0.154	1:0.600	1:0.651	1:0.509	1:0.533
112	1:0.882	--	1:0.882	1:1.114	--	1:1.114
123	1:0.0	1:0.0	1:0.0	1:0.0	1:0.0	1:0.0
129	--	1:0.0	1:0.0	--	1:0.500	1:0.500
139	1:1.172	--	1:1.172	1:1.132	--	1:1.132
141	--	--	--	--	1:0.0	1:0.0
143	1:0.286	--	1:0.286	1:0.233	--	1:0.233
147	--	--	--	--	1:0.0	1:0.0
163	1:0.0	--	1:0.0	1:0.0	--	1:0.0
172	--	--	--	1:0.0	--	1:0.0
174	--	--	--	--	1:2.667	1:2.667
179	--	1:0.364	1:0.364	--	1:0.240	1:0.240
229	--	--	--	1:0.718	--	1:0.718
239	1:49.000	--	1:49.000	1:28.000	--	1:28.000
243	--	--	--	1:11.000	--	1:11.000
246	--	1:1.000	1:1.000	--	1:1.000	1:1.000
251	1:0.0	1:0.027	1:0.023	1:0.0	1:0.025	1:0.018
254	--	1:0.0	1:0.0	1:0.0	1:0.0	1:0.0
259	--	--	--	--	1:0.0	1:0.0
266	1:0.170	--	1:0.170	1:0.200	--	1:0.200
271	1:0.0	1:0.006	1:0.003	1:0.0	1:0.010	1:0.003
273	--	--	--	1:0.625	--	1:0.625
274	1:0.929	1:7.000	1:0.982	1:0.825	1:0.222	1:0.755
286	1:0.433	--	1:0.433	1:0.800	1:0.0	1:0.651
289	--	--	--	--	1:0.286	1:0.286
291	1:0.0	--	1:0.0	1:0.0	--	1:0.0
292	--	--	--	1:0.0	--	1:0.0
303	--	1:0.0	1:0.0	--	1:0.0	1:0.0
305	--	--	--	--	1:0.0	1:0.0
315	--	1:0.0	1:0.0	--	1:0.0	1:0.0
324	--	--	--	--	1:0.0	1:0.0
325	--	--	--	--	1:0.0	1:0.0
327	--	1:0.0	1:0.0	--	1:0.0	1:0.0
328	--	--	--	--	1:0.083	1:0.083
329	--	--	--	1:0.0	--	1:0.0
335	--	--	--	--	1:7.019	1:7.019
339	1:0.0	--	1:0.0	1:0.167	--	1:0.167
347	1:0.0	--	1:0.0	1:0.0	1:0.0	1:0.0
353	1:0.0	--	1:0.0	1:0.0	--	1:0.0

Table 4.6 (Cont'd)

SIC #	Before Year			Final Year		
	ADA	Non-ADA	Total	ADA	Non-ADA	Total
357	--	--	--	1:0.0	--	1:0.0
372	--	--	--	1:0.0	--	1:0.0
375	--	--	--	1:0.133	--	1:0.133
378	1:0.054	--	1:0.054	1:0.020	--	1:0.020
379	1:0.0	--	1:0.0	1:0.0	--	1:0.0
Total	1:0.307	1:0.065	1:0.223	1:0.338	1:0.533	1:0.412

increased female workers to 5 out of ten. The inclusion of the 8 additional plants does not significantly alter the results: those reporting the male: female distribution showed a change of 421 male employees to 237 female. Table 4.6 indicates that the rapid increase in female employment in the non-ADA plants has taken place largely in the Fish Products (SIC # 111) and Communications Equipment (SIC #335) industries and probably fell into the category of low wage female occupations. The balance obtained in the ratio of male to female jobs created in the ADA plants seems to be much more desirable and may be said to have contributed to a favourable shift in the employment structure. Table 4.5 indicates the shifts in the male/female ratio by CMC districts.

The ratio of skilled to unskilled workers employed showed some improvement in the ADA plants and some worsening in the non-ADA plants. Again one could conclude that the overall structure of employment in this respect shows some slight improvement through the results of the ADA program. Table 4.7 shows the alterations in the ratios of skilled to unskilled workers by CMC district. The ratios by SIC numbers are included in the statistical appendix. It is difficult, of course, to define strictly which workers must be identified as skilled and which as unskilled. For the purpose of the survey those interviewed were asked to make the identification on the basis of which were paid rates as skilled workers and which as unskilled workers. This leaves considerable latitude for interpretation on the part of the interviewee.

Table 4.7

Ratio of Skilled to Unskilled Wage Earners
Main Survey Plants, Before Year and Final Year (1967)
By CMC

CMC	Skilled:Unskilled Wage Earners					
	ADA	Before Year Non-ADA	Total	ADA	Final Year Non-ADA	Total
01	1:0.699	1:1.500	1:0.787	1:0.574	1:0.867	1:0.613
02	--	--	--	1:0.0	1:2.081	1:2.018
03	--	--	--	1:0.0	--	1:0.0
04	--	1:0.0	1:0.0	1:0.088	1:0.353	1:0.314
05	1:0.0	1:0.0	1:0.0	1:0.188	1:0.0	1:0.033
06	1:0.007	1:0.500	1:0.040	1:0.047	1:0.0	1:0.044
07	1:0.460	0:1.0	1:0.920	1:0.113	1:1.229	1:0.229
08	1:0.906	1:0.0	1:0.770	1:0.163	1:0.0	1:0.144
09	1:0.397	--	1:0.397	1:0.312	1:0.871	1:0.402
11	--	--	--	--	1:0.0	1:0.0
12	--	1:0.447	1:0.447	--	1:0.347	1:0.347
Total	1:0.425	1:0.489	1:0.443	1:0.231	1:0.591	1:0.358

Table 4.8

Ratio of Local to External Wage Earners
Main Survey Plants, Before Year and Final Year (1967)
By CMC

CMC	Local:External Wage Earners					
	ADA	Non-ADA	Total	ADA	Non-ADA	Total
01	1:0.0	1:0.0	1:0.0	1:0.0	1:0.0	1:0.0
02	--	--	--	1:0.0	1:0.0	1:0.0
03	--	--	--	1:0.0	--	1:0.0
04	--	1:0.0	1:0.0	1:0.0	1:0.002	1:0.002
05	1:0.0	1:0.0	1:0.0	1:0.056	1:0.007	1:0.016
06	1:0.0	1:0.0	1:0.0	1:0.003	1:0.0	1:0.002
07	1:0.0	1:0.0	1:0.0	1:0.261	1:0.0	1:0.212
08	1:0.0	1:0.0	1:0.0	1:0.001	1:0.0	1:0.001
09	1:0.050	1:0.0	1:0.050	1:0.071	1:0.0	1:0.055
11	--	1:0.0	--	--	1:0.0	1:0.0
12	--	1:0.241	1:0.241	--	1:0.193	1:0.193
Total	1:0.012	1:0.125	1:0.043	1:0.045	1:0.030	1:0.039

Both ADA and non-ADA plants had high ratios of local to external workers--where external workers are defined as those recruited outside of Nova Scotia. ADA plants showed some slight increase in the ratio of external workers to local workers, and non-ADA plants some decrease, but no significant shift seems to have taken place in either group of plants. The ratios of local to external workers by CMC districts are given in Table 4.8. When asked if they experienced any particular difficulties in recruiting local labour, 58 of the firms answered negatively and 20 reported some difficulty. Difficulties were usually experienced in those occupations where they might well have been expected by prospective employers: highly skilled occupations in industries new to the region or where relatively large plants were located in very small communities.

Recent studies (for example by Prof. F. T. Denton¹) have indicated that part of the explanation for high annual rates of unemployment lies in the seasonal nature of much of the province's employment. Accordingly some improvement in the structure of employment might be achieved by decreasing the seasonality of employment opportunities. Firms were asked if their employment records showed much seasonal influence and whether any changes in these seasonal patterns were observed over the survey period. Twenty-five out of 45 ADA plants

¹F. T. Denton, "An Analysis of Interregional Differences in Manpower Utilization and Earnings," prepared for the Economic Council of Canada, Ottawa, 1966, pp. 6-7.

Table 4.9

Seasonality of Employment
Main Survey Plants

	Seasonality Observed		Change in Seasonality During Survey Period	
	Yes	No	Yes	No
ADA	25	20	0	17
Non-ADA	22	13	0	7
Total	47	33	0	24

reported seasonal employment patterns, and 22 out of 35 non-ADA plants also reported seasonal patterns. Not one (of the 24 firms who replied "Yes" to the first question and also responded to the second) reported that any shift in the seasonal pattern of their employment was observed during the survey period. Obviously the ADA program can take no credit for improvements in this respect. New plants induced by the program may include more non-seasonal employers but their record overall is similar to that of the total sample.

Indirect and Induced Employment

In the introductory chapter the total employment effect is stated as the sum of direct employment (E_i) plus indirect employment ($\sum_{j=1}^n E_{ij}$) plus induced employment ($\sum_{k=1}^m E_{ik} + \sum_{j=1}^n \sum_{k=1}^m E_{ijk}$).

We have estimated direct employment effects in the survey plants and some effort must be made at this point to estimate the remaining indirect and induced effects.

Indirect employment generated out of the establishment or expansion of new plants during the period of the survey is that created in backward and forward linked firms which produce the goods and services required as inputs by the originating plants, or which employ workers in production processes which require as outputs the production of the originating plants. The links may exist between plants within the designated area, or between plants in the designated area and others outside the area; between originating plants and other plants within the manufacturing sector or between originating plants and primary or tertiary sector producers. It is clear that any program aimed at stimulating employment is apt to be more successful when strong links productive of strong indirect employment effects within the area to be affected are established.

Induced employment is that generated by spending propensities out of incomes received from direct and indirect employment. Obviously, once again, the overall employment in the region resulting out of any given initial stimulus, will be greater the greater is the propensity to spend the incomes received out of the new jobs on goods and services produced within the region--and, hence, produced by the region's labour force.

In this study indirect employment effects are confined to those created in Nova Scotia and no effort is made to separate out those indirect effects within the designated area alone. Since the

only undesignated area recognized in the study is Halifax county--excepting the easternmost portion--this does not involve a large extension of the boundaries of the study, and, since the ADA program is intended to stimulate industrial growth, directly or indirectly, throughout the whole province, the extension, such as it is, seems justified. It was proposed originally to use a method of estimating these effects, similar to that adopted by Hansen and Tiebout,¹ which would find the portion of the total sales of each linked firm going to the originating firm and take the same proportion of the total employment in each firm as those indirectly employed as a result of the activities of the originating firm. This would involve the use of direct survey information obtained from linked firms, including information regarding location decisions and the significance which the linked sales had for this decision. A survey form was prepared for the linkage firms but the results of the survey were not good and it was thought better to make estimates with other methods.

The first method employed aimed at estimating the first order linkage effects from the survey plants to other manufacturing firms in the region, that is the indirect employment created in other manufacturing concerns in Nova Scotia. The labour input required per dollar of output was computed for each CMC district for the before year and the final year (1967) and applied to the data contained in Table 3.10 to estimate the number of indirect jobs

¹L. Hansen and S. M. Tiebout, "An Intersectoral Flow Analysis of the California Economy," Review of Economics and Statistics, Vol. 45, 1963, pp. 409-418.

Table 4.10

Indirect Employment in Manufacturing Establishments
In Nova Scotia by CMC--Linkages from
Main Survey Plants

CMC	Indirect Employment		
	ADA Plants	Non-ADA Plants	Total
01 BY	34.3	35.0	69.3
FY	94.3	33.6	127.9
<u>Change</u>	<u>60.0</u>	<u>-1.4</u>	<u>58.6</u>
04 BY	3.2	1.4	4.6
FY	6.2	8.8	15.0
<u>Change</u>	<u>3.0</u>	<u>7.4</u>	<u>10.4</u>
05 BY	4.7	2.2	6.9
FY	3.3	2.9	6.2
<u>Change</u>	<u>-1.4</u>	<u>.7</u>	<u>- .7</u>
06 BY	1.1	2.3	3.4
FY	2.3	6.4	8.7
<u>Change</u>	<u>1.2</u>	<u>4.1</u>	<u>5.3</u>
07 BY	0	1.0	1.0
FY	3.8	2.9	6.7
<u>Change</u>	<u>3.8</u>	<u>1.9</u>	<u>5.7</u>
08 BY	2.9	.3	3.2
FY	258.0	.8	258.8
<u>Change</u>	<u>255.1</u>	<u>.5</u>	<u>255.6</u>
09 BY	0	5.0	5.0
FY	1.8	16.5	18.3
<u>Change</u>	<u>1.8</u>	<u>11.5</u>	<u>13.3</u>
10 BY	26.4	15.1	41.5
FY	40.3	18.9	59.2
<u>Change</u>	<u>13.9</u>	<u>3.8</u>	<u>17.7</u>
Total BY	72.6	62.3	134.9
FY	410.0	90.8	500.8
<u>Change</u>	<u>337.4</u>	<u>28.5</u>	<u>365.9</u>

Source: Labour per unit of output from Table 3.3 and Statistical Supplement, Linkage output from Table 3.10. Indirect employment is computed as product of labour per unit of output and linked output.

created in each CMC district. This assumes that the same labour to output ratio prevails in the linked plants in each CMC district as characterizes the other survey plants in the district. Table 4.10 shows the results of this calculation, indicating that 337.4 new indirect jobs were created by ADA assisted plants in the survey period, and 28.5 by the non-ADA plants, in manufacturing firms in Nova Scotia. This, however, involves some double counting since some of these indirect jobs are in the survey plants where they have already been noted and counted. Subtracting these double counted jobs, the net total of indirect jobs out of ADA plants is 325.3; the total for non-ADA plants is unchanged. This would make a total of direct and indirect jobs in manufacturing concerns in Nova Scotia created in ADA plants and plants linked to ADA firms of 1879; for the non-ADA firms in the survey it is 1527. It would not be possible to derive induced employment totals for the manufacturing sector alone.

The second method of estimating indirect employment effects is by utilizing the multipliers derived in the input-output data prepared for the Atlantic Provinces by the Atlantic Development Board.¹ The multipliers are prepared from data gathered for 1960, and one must approach their use with all the suspicion attached to any effort to calculate multipliers, but in spite of this they are the best efforts at determining employment and income multipliers available for Nova Scotia.² The multipliers are calculated for

¹The Atlantic Development Board undertook the preparation of an Input-Output Study of the Atlantic Provinces under the direction of Professor Kari Levitt. The total study has not yet been released, but portions of the study are available and have been employed for this study.

²For a critical analysis of the input-output data and the derived multipliers referred to, see Kari Levitt, "A Macro Economic

activity generated in sixteen industrial sectors of which seven are divisions of the manufacturing sector: Manufacturing Food, Manufacturing Capital Goods, Manufacturing Fish Products, Manufacturing Sawmills, Manufacturing Pulp and Paper, Manufacturing Boat and Shipbuilding, Manufacturing Other. Employment data by Standard Industrial Classifications have been combined under each of these headings and the appropriate multipliers applied to estimate Total Direct and Indirect Employment (Type I Multiplier) and Total Direct, Indirect and Induced Employment (Type II Multiplier).

Table 4.11 shows the employment effects generated out of the direct employment changes in ADA assisted plants over the period. In addition to the 1554 jobs created directly in the ADA plants surveyed, the data suggests that an additional 1682 jobs were created indirectly by backward and forward linked plants, and 2005 jobs were induced through multiplier effects--a grand total of 5242 jobs generated out of the establishment or expansion of ADA assisted plants during the survey period. This would give an overall employment multiplier for the ADA survey firms of 3.3732 (i.e. $5242 \div 1554$). When the 8 Additional ADA Firms are considered, 741 more direct jobs are included. Dividing these firms by SIC numbers into the manufacturing categories and applying the appropriate multipliers, a total of 2866.2 more jobs are accounted for, which would

Analysis of the Structure of the Economy of the Atlantic Provinces," Paper presented at meetings of the Canadian Economic Association, York University, Toronto, 1969.

Total Employment Generated Out of Direct Employment Changes in ADA Plants, Main Survey Firms

SIC #	Direct Employment Change	Type I Mult.	Type II Mult.	Total Direct & Indirect Employment	Total Direct Indirect & Induced Employment
<u>Mfg. Food</u>					
107	14	2.6666	3.9527	37.33	55.34
112	-4			-10.67	-15.81
123	11			29.33	43.48
139	20			53.33	79.05
143	15			40.00	59.29
Total	56			149.33	221.35
<u>Mfg. Capital Goods</u>					
291	7	1.7370	2.9677	12.16	20.77
292	9			15.63	26.71
Total	16			27.79	47.48
<u>Mfg. Fish Products</u>					
111	78	2.9967	4.3863	233.74	342.13
Total	78			233.74	342.13
<u>Mfg. Sawmills</u>					
251	18	1.7402	2.5852	31.32	46.53
254	35			60.91	90.48
Total	53			92.23	137.02
<u>Mfg. Pulp & Paper</u>					
271	415	2.9088	4.9160	1207.15	2040.14
273	21			61.08	103.24
274	57			165.80	280.21
Total	493			1434.04	2423.59
<u>Mfg. Other</u>					
163	2	1.5144	2.4132		4.83
				3.03	

Table 4.11 (Cont'd)

SIC #	Direct Employment Change	Type I. Mult.	Type II Mult.	Total Direct & Indirect Employment	Total Direct Indirect & Induced Employment
Mfg. Other (Cont'd)					
172	11			16.66	26.55
229	541			819.29	1305.54
239	10			15.14	24.13
243	61			92.38	147.21
266	5			7.57	12.07
286	56			84.80	135.14
329	6			9.09	14.48
339	11			16.66	26.54
347	14			21.20	33.78
353	3			4.54	7.24
357	75			113.58	180.99
372	21			31.80	50.68
375	28			42.40	67.57
378	13			19.69	31.37
379	1			1.51	2.41
Total	858			1299.36	2070.53
TOTAL	1554			3236.49	5242.10

Notes: Type I Multiplier: Direct and Indirect Employment Generated per 1000 Units of Output/Direct Employment Generated per 1000 Units of Output.
Type II Multiplier: Direct, Indirect and Induced Employment Generated per 1000 Units of Output/Direct Employment Generated per 1000 Units of Output.

Source: Direct Employment Change: from Main Survey Data.
Multipliers: Atlantic Development Board Input-Output Tables for the Province of Nova Scotia.

give a multiplier value of $3.5329 \left((5242 + 2866) \div (1554 + 741) \right)$

If, as estimated earlier in this chapter, the main survey ADA plants created 1000 more jobs by 1970 this would produce a further estimated employment change of 3732 (1000×3.732) for a total employment change generated through the ADA assisted plants by 1970 of 8974 ($5242 + 3732$). Adding in the extra 204 jobs predicted by the 8 Additional Plants and employing the higher multiplier value the additional jobs by 1970 would be 4253.6 (1204×3.5329), for a grant total of $5242 + 2866 + 4253 = 12,361$ jobs created by direct, indirect and induced employment effects of ADA assisted plants by 1970.

The total employment effects estimated and predicted here seem hopefully high, but this must be the result of the multipliers employed. Mr. G. S. Bhalla, in commenting on the ADB multipliers, observed that the Type II multipliers were the highest for Fish Processing, Manufacturing Pulp and Paper and Sawmilling and that of the three Atlantic provinces analysed Nova Scotia has the highest multipliers for each sector. The consumption multiplier was also observed to be fairly large for Nova Scotia (1.47567), so that, all things considered, evidence seems to lend some support to the size of the multiplier results we have observed. It must be kept in mind, of course, that totalling the jobs created directly, indirectly and by inducement is not the same as saying they were caused by the ADA program.

Table 4.12 shows the same data for the main survey Non-ADA plants to 1967. 1499 direct jobs, 1943 indirect jobs and

Table 4.12

Total Employment Generated Out of Direct Employment Changes in Non-ADA Plants, Main Survey Firms

SIC #	Direct Employment Change	Type I Mult.	Type II Mult.	Total Direct & Indirect Employment	Total Direct Indirect & Induced Employment
<u>Mfg. Food</u>		2.6666	3.9527		
103	5			13.33	19.76
105	17			45.33	67.20
123	12			31.99	47.43
129	16			42.67	63.24
141	8			21.33	31.62
147	2			5.33	7.91
Total	60			160.00	237.16
<u>Mfg. Capital Goods</u>		1.7370	2.9677		
303	4			6.95	11.87
305	3			5.21	8.90
315	-13			-22.58	-38.58
Total	-6			-10.42	-17.81
<u>Mfg. Fish Products</u>		2.9967	4.3863		
111	746			2235.54	3272.18
Total	746			2235.54	3272.18
<u>Mfg. Sawmills</u>		1.7402	2.5852		
251	8			13.92	20.68
254	28			48.72	72.39
259	7			12.18	18.10
Total	43			74.83	111.16
<u>Mfg. Pulp & Paper</u>		2.9088	4.9160		
271	-20			-58.18	-98.32
274	15			43.63	73.74
Total	-5			-14.55	-24.58

Table 4. 12 (Cont'd)

SIC #	Direct Employment Change	Type I Mult.	Type II Mult.	Total Direct & Indirect Employment	Total Direct Indirect & Induced Employment
<u>Mfg. Boat & Shipbuilding</u>					
327	8	1.3460	2.3303	10.77	18.64
328	13			17.50	30.29
Total	21			28.27	48.94
<u>Mfg. Other</u>					
174	22	1.5144	2.4132	33.32	53.09
179	3			4.54	7.24
286	12			18.17	28.96
289	11			16.66	26.54
324	45			68.15	108.59
325	35			53.00	84.46
335	500			757.20	1206.60
347	12			18.17	28.96
Total	640			969.22	1544.44
TOTAL	1499			3442.89	5171.49

Notes: Type I Multiplier: Direct and Indirect Employment Generated per 1000 Units of Output/Direct Employment Generated per 1000 Units of Output.
Type II Multiplier: Direct, Indirect and Induced Employment Generated per 1000 Units of Output/Direct Employment Generated per 1000 Units of Output.

Source: Direct Employment Change: from Main Survey Data.
Multipliers: Atlantic Development Board Input-Output Tables for the Province of Nova Scotia.

1729 induced jobs were created through the establishment or expansion of the Non-ADA plants in the survey period. A total of 5171.49 jobs are estimated to have been created by and through these plants, for an overall employment multiplier of 3.4496, approximately the same as for the ADA plants. The job creating record of the non-ADA plants seems quite as creditable as that of the ADA plants but it is quite probable that as the ADA program--or any successor to it--continues more and more firms will make use of its program of incentives and more and more of the jobs created will be in assisted plants. The employment record of the non-ADA plants to date shows, however, that many jobs can be created without the incentives and suggests that many of those created in assisted plants might well have been created in the absence of any plan just as these were.

Wages and Income

The total effect on incomes in the region resulting from the establishment or expansion of new plants in the survey period is probably beyond the scope of this study to compute. The firm's contribution to personal incomes within the region would exclude indirect tax payments, corporate profits taxes and retained earnings and would include any alteration in transfer payments (positive or negative) resulting from the firms operation. The net effect on personal incomes of a change in the operation of a firm (e.g. an ADA induced establishment or expansion) includes:

--the change in wages and salaries received

- the change in net interest payments received in the region
- the change in dividend payments received in the region
- the change in government transfer payments (+ or -) in the region resulting from the change in the firm's operation
- any changes in incomes received (+ or -) in operations external to the firm resulting from the change in the firm's operation.

In addition incomes in the region would be influenced by local tax contributions and business transfer payments which contribute to local incomes. On the whole it is doubtful whether any agency, excepting perhaps the Department of National Revenue, would have the data available, or could obtain it, for a fairly accurate assessment of the firm's effect on regional personal incomes as defined here. Since we lack the means to assess rental incomes, dividend receipts, transfer payment effects, the effects on incomes external to the plant, and the regional distribution of tax payments by the firms, we cannot assume to analyse properly the income effects of alterations in the operations of the firms interviewed. In the survey firms were asked to give their total wage bill and the total outlay on salaries for before and final years and some information on the distribution of these disbursements by sex. With this limited information, the study treats income effects solely in terms of wage and salary changes over the period and sums the overall effect as direct effects on wage and salary income (I_1) plus indirect effects on incomes rising from linkage effects ($\sum_{j=1}^n I_{1j}$) plus induced

income effects $(\sum_{k=1}^m I_{ik} + \sum_{j=1}^n \sum_{k=1}^m I_{ijk})$. The changes in wages and salaries are uncorrected for inflation effects since the period of the study (1962-1967) is short and was moreover one of relative price stability throughout Canada.

The Direct Impact on Wages and Salaries

ADA assisted firms included in the survey paid out \$12,250,939 in wages and salaries in the final year (1967) which represented an increase of \$5,514,483 over the beginning year wages and salaries for this group of plants. The eight additional ADA plants reported a further \$2,000,000 in wages and salaries for 1967, which made a total of \$7,514,483 in new wages and salary income during the survey period. Table 4.13 sums up this income data for the main survey plants. In the same period non-ADA plants reported total remunerations of \$7,983,720 for 1967, an increase of \$4,613,017 in wages and salaries over the survey period. Estimates of salaries and wages in 1970 were not asked for in the survey, but if 1,000 extra jobs are created in the ADA plant by that time, as predicted earlier, and paid at the average rate established in the 1967 data, then \$5,031,040 of additional income would be created. This would mean an increase in the annual income from wages and salaries for employees in ADA plants of the main survey from the beginning of the survey period to 1970, of \$12,545,523.

Tables 4.14 and 4.15 show the distribution of these wage and salary changes by CMC and SIC respectively. The data showing the effect on average salaries in both ADA and non-ADA plants during

Table 4.13

Changes In Total Wage and Salary Bill
Main Survey Plants

	Wage and Salary Bill		Wage and Salary Employee		Average Wage and Salary and Per Cent Change
	\$	%	\$	%	
ADA Firms					
BY	6,736,456	66.7	1,762	69.9	3,823.19
FY	12,251,039	60.5	3,316	59.5	3,694.52
Change	5,514,583	54.5	1,554	50.9	-3.36 %
Non-ADA Firms					
BY	3,370,703	33.3	757	30.1	4,452.71
FY	7,983,720	39.5	2,256	40.5	3,538.88
Change	4,613,017	45.5	1,499	49.1	-20.52%
Total					
BY	10,107,159	100	2,519	100	4,012.37
FY	20,234,759	100	5,572	100	3,631.51
Change	10,127,600	100	3,053	100	-9.49%

Table 4.14

Change in Wages and Salary Bill
(Before Year to Final Year)
Main Survey Plants
By CMC District

CMC #	<u>ADA Firms</u>		<u>Non-ADA Firms</u>		<u>Total</u>	
	Payroll Change \$	Mean Pay Per Additional Worker \$	Payroll Change \$	Mean Pay Per Additional Worker \$	Payroll Change \$	Mean Pay Per Additional Worker \$
01	642,509	4,689.85	204,713	6,603.65	847,222	5,042.99
02	12,000	2,400.00	2,256,000	3,698.36	2,268,000	3,687.80
03	10,000	2,500.00	0	0	10,000	2,500.00
04	521,513	6,283.29	560,000	1,040.89	1,081,513	1,741.57
05	139,883	4,238.88	293,884	3,971.41	433,767	4,053.90
06	276,876	2,163.10	54,000	18,000.00	330,876	2,525.77
07	1,773,841	5,912.80	164,000	2,645.16	1,937,841	4,527.67
08	707,410	1,046.46	129,758	1,908.21	837,168	1,125.22
09	1,430,551	11,725.83	180,400	1,478.69	1,610,951	6,602.26
11	0	0	13,000	4,333.33	13,000	4,333.33
12	0	0	757,262	(0) ¹	757,262	(0)
Total	5,514,583		4,613,017		10,127,600	

Note 1: Employment in CMC #12 was reduced during the survey period.

the four-year period is much less impressive, but also probably misleading. By dividing payroll income by number employed the average of wages and salaries in ADA plants shows a 3.36 per cent decline, and in the non-ADA plants a 20.52 per cent decline. There are several possible explanations for this. Many of the jobs created were in relatively low wage industries, e.g. fish products, textiles, communication equipment, and many in low wage occupations. The increase in the ratio of women to men in the work force, with many of the women engaged in low wage, low skill tasks would serve to increase the significance of low wage occupation in the mix. These effects are largely offset in the ADA group by the presence of one high wage industry, pulp and paper, as a major new employer. The major plant in this group, however, came into production only in June of 1967 and hence paid its workforce only for seven months. Since only this portion of the year's income shows in the total the overall average is reduced and, because this plant is large enough in the overall employment picture to significantly influence the averages, the average wage in the ADA plants is drawn down. A number of other plants were coming into production during 1967 and the same effect is produced on the data for the survey firms, in each case drawing the average down. A more realistic picture of the effect on the average wage bill from the establishment or expansion of plants would be discernible with later data when the plants affected were closer to capacity operation on a year round basis; or would be demonstrated through the movements of general wage levels in the province during the period as is done in Chapter V.

Table 4.15

Wage and Salary Changes, Main Survey Plants
By SIC (BY and FY)

SIC #	ADA Firms	Non-ADA Firms	Total
	\$	\$	\$
103	0	76,811	76,811
105	0	58,000	58,000
107	71,329	0	71,329
111	202,278	2,436,595	2,638,873
112	39,200	0	39,200
123	26,730	56,000	82,730
129	0	52,100	52,100
139	63,000	0	63,000
141	0	23,000	23,000
143	150,660	0	150,660
147	0	9,000	9,000
163	3,819	0	3,819
172	30,300	0	30,300
174	0	38,400	38,400
179	0	54,000	54,000
229	408,000	0	408,000
239	22,000	0	22,000
243	150,000	0	150,000
246	0	3,000	3,000
251	47,980	65,636	113,616
254	155,650	90,000	245,650
259	0	23,905	23,905
266	40,000	0	40,000
271	2,888,002	722,000	3,610,002
273	35,305	0	35,305
274	283,828	33,000	316,828
286	119,996	55,000	174,996
289	0	40,000	40,000
291	-61,000	0	-61,000
292	22,000	0	22,000
303	0	16,024	16,024
305	0	9,415	9,415
315	0	-9,355	-9,355
324	0	106,000	106,000
325	0	125,224	125,224
327	0	35,262	35,262
328	0	44,000	44,000
329	29,815	0	29,815
335	0	390,000	390,000
339	38,700	0	38,700
347	27,487	60,000	87,487
353	-4,500	0	-4,500
357	467,347	0	467,347
372	35,683	0	35,683
375	125,000	0	125,000
378	94,553	0	94,553
379	1,421	0	1,421
Total	5,514,583	4,613,017	10,127,600

Tables 4.14 and 4.15 show the distribution of wage and salary changes by CMC and SIC respectively. The mean pay per additional worker has been computed for the Canada Manpower Centres by dividing the change in the payroll by the change in employment. It provides a rough indication of effects in each Center, but it is not, of course, the average pay received by the new workers since some of the increase in payroll went in the form of wage increases to former employees.

Indirect and Induced Income Effects

The multipliers derived for the Atlantic Development Board study--this time the income multipliers--are employed to calculate the indirect and induced income effects generated out of the direct payroll effects. Once more it must be emphasized that the data employed does not permit an estimate of the total effect on incomes resulting from the establishment or expansion of plants during the survey period. Payroll effects only are considered and estimates of indirect effects and induced effects are based solely on these payroll data and hence an underestimate of the true effect. It must be kept in mind also that the effects traced out are not necessarily caused by the ADA incentives plan (in the case of the ADA plants); there are numerous factors other than ADA which influence the investment and location decisions.

Table 4.16 shows the income effects generated out of the direct payroll changes in ADA assisted plants over the survey period. From the direct income change of \$5,514,583 in the ADA plants, additional indirect income of \$5,523,393 out of backward and forward links is

Table 4.16

Total Income Created Out of Direct Income Changes in ADA Plants, Main Survey Firms to 1967

SIC #	Direct Income Change	Type I Mult.	Type II Mult.	Total Direct & Indirect Income	Total Direct, Indirect & Induced Income
<u>Mfg. Food</u>		1.7785	2.5117		
107	71,329			126,858.63	179,157.05
112	39,200			69,717.20	98,458.64
123	26,730			47,539.31	67,137.74
139	63,000			112,045.50	158,237.10
143	150,660			267,948.81	378,412.72
Total	350,919			624,109.44	881,403.25
<u>Mfg. Capital Goods</u>		1.5225	2.2407		
291	-61,000			-92,872.50	-136,682.70
292	22,000			33,495.00	49,295.40
Total	-39,000			-59,377.50	-87,387.30
<u>Mfg. Fish Products</u>		2.8891	4.2469		
111	202,278			584,401.37	859,054.44
Total	202,278			584,401.37	859,054.44
<u>Mfg. Sawmills</u>		2.1103	3.1090		
251	47,980			101,252.19	149,169.82
254	155,650			328,468.19	483,915.85
Total	203,630			429,720.39	633,085.67

Table 4.16 Cont'd

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SIC #	Direct Income Change	Type I Mult.	Type II Mult.	Total Direct & Indirect Income	Total Direct, Indirect & Induced Income
<u>Mfg. Pulp & Paper</u>	2.2256	3.2853			
271	2,888,002			6,427,537.25	9,487,952.97
273	35,305			78,574.81	115,987.52
274	283,828			631,687.60	932,460.13
Total	3,207,135			7,137,799.66	10,536,400.62
<u>Mfg. Other</u>	1.4603	2.0988			
163	3,819			5,576.89	8,015.32
172	30,300			44,247.09	63,593.64
229	408,000			595,802.40	856,310.40
239	22,000			32,126.60	46,173.60
243	150,000			219,045.00	314,820.00
266	40,000			58,412.00	83,952.00
286	119,996			175,230.16	251,847.60
329	29,815			43,538.84	62,575.72
339	38,700			56,513.61	81,223.56
347	27,487			40,139.27	57,689.72
353	-4,500			-6,571.35	-9,444.60
357	467,347			682,466.82	980,867.88
372	35,683			52,107.99	74,891.48
375	125,000			182,537.50	262,350.00
378	94,553			138,075.75	198,447.84
379	1,421			2,075.09	2,982.39
Total	1,589,621			2,321,323.55	3,336,296.55
TOTAL	5,514,583			11,037,976.91	16,158,853.23

Notes: Type I Multiplier: Direct and indirect income per unit of output/direct income per unit of output.

Type II Multiplier: Direct, indirect and induced income per unit of output/direct income per unit of output.

Source: Direct income change: from survey data.

Multipliers: Atlantic Development Board Input-Output Tables for the Province of Nova Scotia.

estimated, and further induced income of \$5,120,877 results from multiplier effects. The total predicted change in income from the establishment or expansion of the ADA plants is \$16,158,853 which implies an overall multiplier effect of 2.9302 (i.e. $\$16,158,853 \div \$5,514,583$). Inclusion of the eight additional ADA firms increases direct incomes by \$2,000,000 and when the payrolls of these plants are multiplied by the appropriate Type II multiplier the estimated total new income created through these plants by 1967 is \$4,958,004. When this is added to the total for the main survey firms, total new income created as a result of payroll increases in the ADA firms up to 1967 comes to \$21,116,857 and the overall multiplier comes to 2.8101 ($\$21,116,857 \div \$7,514,583$). Projecting into the future, and applying this overall multiplier, 2.8101, to the additional direct income estimated in ADA plants by 1970, additional annual income of \$14,137,725 is forecast by that date, which would make a grand total of \$35,254,582 in additional incomes in Nova Scotia resulting from the direct, indirect and induced effects on income from ADA assisted plants by 1970.

Similar data for the main survey non-ADA plants is given in Table 4.17. \$4,613,017 in direct income, \$6,373,253 in indirect income, and \$5,105,939 in induced income were created through the establishment or expansion of the non-ADA plants in the survey period. Altogether these plants added \$16,092,209 to Provincial incomes in that period and this implies an overall multiplier effect for the non-ADA plants of 3.4884. This is a higher multiplier than that estimated for the ADA group plants largely due to the significance of fish products plants in this group, for which the ADB multiplier

Table 4.17

Total Income Created Out of Direct Income Changes in Non-ADA Plants, Main Survey Firms to 1967

SIC #	Total Direct Income	Type I. Mult.	Type II Mult.	Total Direct & Indirect Income	Total Direct, Indirect & Induced Income
<u>Mfg. Food</u>					
		1.7785	2.5117		
103	76,811			136,608.36	192,926.19
105	58,000			103,153.00	145,678.60
123	56,000			99,596.00	140,655.20
129	52,100			92,659.85	130,859.57
141	23,000			40,905.50	57,769.10
147	9,000			16,006.50	22,605.30
Total	274,911			488,929.21	690,493.96
<u>Mfg. Capital Goods</u>					
		1.5225	2.2407		
303	16,024			24,396.54	35,904.98
305	9,415			14,334.34	21,096.19
315	-9,355			-14,242.99	-20,961.75
Total	16,084			24,487.89	36,039.42
<u>Mfg. Fish Products</u>					
		2.8891	4.2469		
111	2,436,595			7,039,566.61	10,347,975.31
Total	2,436,595			7,039,566.61	10,347,975.31
<u>Mfg. Sawmills</u>					
		2.1103	3.1090		
251	65,636			138,511.65	204,062.32
254	90,000			189,927.00	279,810.00
259	23,905			50,446.72	74,320.65
Total	179,541			378,885.37	558,192.97
<u>Mfg. Pulp & Paper</u>					
		2.2256	3.2853		
271	722,000			1,606,883.20	2,371,986.60
274	33,000			73,444.80	108,414.90
Total	755,000			1,680,328.00	2,480,401.50

SIC #	Total Direct Income	Type I. Mult.	Type II Mult.	Total Direct & Indirect Income	Total Direct, Indirect & Induced Income
<u>Mfg. Boat & Shipbuilding</u>					
327	35,262	1.2773	1.8892	45,040.15	66,616.97
328	44,000			56,201.20	83,124.80
Total	79,262			101,241.35	149,741.77
<u>Mfg. Other</u>					
174	38,400	1.4603	2.0988	56,075.52	80,593.92
179	54,000			78,856.20	113,335.20
246	3,000			4,380.90	6,296.40
286	55,000			80,316.50	115,434.00
289	40,000			58,412.00	83,592.00
324	106,000			154,791.80	222,472.80
325	125,224			182,864.61	262,820.13
335	390,000			569,517.00	818,532.00
347	60,000			87,618.00	125,928.00
Total	871,624			1,272,832.53	1,829,364.45
TOTAL	4,613.07			10,986,270.96	16,092,209.38

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Notes: Type I Multiplier: Direct and indirect income per unit of output/direct income per unit of output.

Type II Multiplier: Direct, indirect and induced income per unit of output/direct income per unit of output.

Source: Direct income change: from survey data.

Multipliers: Atlantic Development Board Input-Output Tables for the Province of Nova Scotia.

estimates are quite high.

Some further interpretation of these employment and income results will be essayed in the final chapter of the study when the strength and importance of the ADA assistance will be examined. At this point the results are presented simply as the evidence of the numbers and responsibility for results cannot be determined.

Chapter V

The Importance and Strength of the ADA Program in Nova Scotia

The earlier chapters have discussed the effects on capital investment, input, output, employment and income that have occurred in Nova Scotia since the inception of the ADA program. Some comparison is offered with new establishments and expansions taking place without ADA incentives but no direct consideration has been given to the question of the Program's success in the light of its own criteria, or to the degree of responsibility which the Program can claim for the results achieved. Attention will focus on these points now.

The "Importance" of The ADA Program in Nova Scotia

The "importance" of the ADA program refers to the size of the results achieved and the degree to which these results satisfy some criteria for success in the program. For this purpose it is assumed that all the results achieved in ADA assisted plants are directly the result of the ADA incentives received.

In summary, the results are quite impressive. In the period from the beginning of the program until December 31st, 1967, \$193,904,259 of new capital investment took place in the ADA survey plants; the value of output in these plants increased by \$50,639,056; 2,295 new jobs were created and payroll incomes rose by \$7,514,583. In addition, the ADA firms showed an increase of \$18,451,511 in the value of inputs purchased from Nova Scotian sources and, when indirect and induced effects are allowed for, the estimated increase in total employment resulting from

the establishment or expansion of the ADA plants was 1808 by 1967, and the increase in incomes was \$21,116,857. These results, of course, are strictly results calculated from the survey data and, since the survey sample is considerably short of 100%, this is not a complete picture of the importance of the ADA program. Such a total picture could not be made without the complete cooperation of the Area Development Agency in the collection and provision of data. In the absence of a complete list of firms receiving assistance and the basic data provided with their application, including details of the value of ADA assistance provided and promised, only a partial record can be made, and only the Area Development Agency, as custodians of the unavailable data, can know the degree to which it falls short of the whole.¹ These remarks are included as a reminder that in all cases the results achieved by the ADA program are better than those noted here since much of the program's effects are unrecorded. One might also keep in mind the criticism that the study is a little premature so that many results were just beginning to appear or were only to emerge in the succeeding two years. All in all one must conclude that the importance of the ADA program for Nova Scotia is and will be greater than this paper can indicate, even where estimates have been attempted for 1970.

The effectiveness of the Program in terms of improving the employment and income statistics of the region relative to Canadian averages is not clear. A number of "tests" are offered but interpretation of the

¹The ADA survey plants reported \$193,904,259 in total investment in fixed assets from 1963 to 1967. The total capital investment in the manufacturing sector reported for Nova Scotia in the same year was \$370.5 million (Data supplied by D.B.S., Business Finance Division). Investment in the ADA Survey plants therefore was only 52.3% of total investment in manufacturing. The non-ADA Survey plants accounted for \$21,761,656 of investment in fixed assets, or an additional 5.9% of the total. Thus, by this data, over 40% of new capital investment in the manufacturing sector in Nova Scotia lies outside the survey firms. Surely a significant portion of this investment took place in non-reporting ADA firms.

results may vary.

The estimated gross effect of the Program on employment in Nova Scotia, allowing for indirect and induced multiplier effects, was 8108 jobs from 1963-1967. The overall increase in employment in the same period was 23,400 jobs (see Table 5.1) which gives a ratio value (ADA induced jobs to all jobs created) of .346. The ratio is quite high and, if the ADA program could take full credit for having induced over 1/3 of the new jobs created during the first four years of operation, it would suggest a remarkable achievement. There is a suspicion, however, that these employment effects may be exaggerated, particularly when they are compared with the income effects below.

The estimated gross effect of the Program on annual incomes in Nova Scotia, with all multiplier effects allowed for, was \$21,116,857 by 1967. In the period between 1963 and 1967, wages, salaries and supplementary labour income in Nova Scotia increased by \$243,000,000. The ratio value (change in incomes induced by the ADA program relative to total change in wages, salaries and supplementary labour income) is .087. This is a fairly low value if we consider the importance of the program to score higher the closer this ratio comes to unity. It suggests that slightly less than 9% of the changes in incomes (in the form of wages, salaries and supplementary labour income) is explainable as a result of the ADA program. Nonetheless any program which contributed to as much as 9% rise in regional incomes must be considered to have made a significant contribution to regional development.

Since a goal of the Program is to assist in overcoming the gap between employment and income levels in Nova Scotia and the national averages, a second test of "importance" would be the degree to which this

Employment and Unemployment Statistics, Nova Scotia and Canada
1962 - 1967

A. Employment Indices by Industry: 1961=100

Year	Industrial Composite		Manufacturing	
	Canada	Atlantic Region	Nova Scotia	Canada
1962	102.2	100.4	100.4	102.2
1963	104.4	101.2	101.1	104.4
1964	108.8	102.9	103.6	108.8
1965	114.3	111.2	108.6	114.3
1966	120.7	117.0	113.0	120.7
1967	122.6	116.6	113.3	122.6

Source: Review of Employment and Average Weekly Wages and Salaries, 1957-1967, D.B.S., Ottawa, March 1969 (Cat. No. 72-002)

B. Labour Force Statistics, Nova Scotia

Year	Employed		Unemployed ('000)	Labour Force ('000)	Unemployment Rate	
	Total ('000)	Manufacturing ('000)			Nova Scotia %	Canada %
1963	214.3	29.3	17.6	231.9	7.6	5.5
1964	217.3	30.7	18.6	235.9	7.9	4.7
1965	228.8	32.5	13.0	241.8	5.5	3.9
1966	234.6	33.2	12.9	247.5	5.2	3.6
1967	237.8	32.7	14.1	251.8	5.6	4.1

Source: Manufacturing employment from, D.B.S., Estimate of Employees By Province and Industry, various years. (Cat. No. 72-008); Unemployment rate for Canada from Bank of Canada Statistical Summary, 1967 Supplement. Remainder from N. S. Department of Labour, Current Labour Force Statistics, various issues, and Mr. A. S. Harvey, Dalhousie Institute of Public Affairs.

has been accomplished through the efforts of the program. In 1963 the unemployment rate in Nova Scotia was 7.6% while the Canadian rate was 5.5%. To reduce the Nova Scotian rate to the Canadian average of 5.5%, 4900 new jobs would have been required in the Province. Our estimates show that in the next four years 8108 jobs resulted from establishment or expansions of ADA plants, for a ratio of 1.655 to 1 of the jobs required at 1963 levels. Over the four year period, of course, labour force figures also changed and some of the new jobs simply obsoleted or replaced other jobs so that the new jobs created do not reduce unemployment rates below the Canadian average. By 1967, 4,350 new jobs would have been required to reduce the Nova Scotian unemployment rate of 5.6% to the Canadian average of 4.1%. In general the employment picture in the province showed considerable improvement in line with the goals of the Program. To what extent the ADA program itself was responsible for this is another question.

Similarly in 1963 per capita personal incomes in Nova Scotia were \$1306 , which was 75% of the Canadian average for per capita personal incomes of \$1740. An increase of \$325,934,000 in provincial personal incomes would have been required to bridge this gap. In this case the exact contribution of the ADA program cannot be worked out since our data provides only estimates of the effects rising out of wages and salary increases in the ADA plants and not an estimate of total personal incomes created. The increase in incomes resulting from the program (partially estimated at \$21,116,857) should have assisted in overcoming this gap. By 1967 per capita personal incomes in the province were 77.4% of the Canadian average, a slight improvement for which some credit should go to the ADA program.

The effectiveness of the Program in terms of its capacity to encourage industries with a growth potential relative to those which appear to have less growth potential has been discussed in Chapter II. The results of the tests recorded there were not flattering to the Program and seemed to indicate that there was little evidence that much of the new investment was going to industries which enjoyed a high growth rate (in terms of employment expansion) nationally. This suggests that the ratio of assistance to plants least apt to contribute to rises in income and employment, relative to the level of assistance to those most apt to, is quite high--and hence undesirable. This evidence, however, must be treated with caution, as suggested in Chapter II.

The estimation of a cost to benefit ratio for the program on the basis of the available data would seem close to worthless. In Chapter IV a cost per job estimate was made for the ADA assisted plants which indicated that for the 80 main survey plants the cost of each job in terms of dollars of new investment undertaken was \$59,125. As pointed out there, however, this figure is quite misleading since much of the employment effect of the capital investment recorded was yet to be achieved. Furthermore the ratio does not take into consideration the indirect and induced jobs created as a result of the original capital invested in the ADA plants. Dividing the total investment in fixed assets in all the ADA plants (\$193,904,259) by the total of direct, indirect and induced jobs estimated (8108), a cost per job of \$23,915.17 can be reached. This would be further reduced as new jobs were created by plants moving towards capacity output.

To estimate the total cost per job in terms of the amount of ADA assistance required per job achieved is not possible due to the inability to measure ADA assistance accurately for the survey firms. The dollar value of tax incentives is not known for those firms choosing this option, and the value of assistance promised but not yet received is also impossible to estimate. Data provided by the Area Development Agency state that the value of ADA incentives (tax and grants) to Nova Scotia totalled \$48,215,645 by June 30th, 1968, and that this went to firms reporting 7,462 job opportunities. This would imply a cost in ADA assistance per direct job of \$6461. This figure can only be reported here without comment since the validity of the estimates of job opportunities, and of the estimates for capital assistance, is not known.

A final reason for hesitating to put much emphasis on cost to benefit relations such as those suggested above is that we would wish to know the cost required for the benefit recorded. In this particular case there is no way of actually measuring what part of the cost incurred in the form of ADA assistance was actually required as a cost of the results in employment and income which followed. In some cases the developments would have taken place without ADA assistance, or ADA assistance was only a partial, or even minor, cause of the effects which followed. Where this is true ADA incentive money may be only a substitute for private capital which would have been forthcoming in its absence and the supply curve for new investment capital (or jobs, or income) quite inelastic to any change in the volume of ADA assistance. This is a problem better dealt with in terms of the "strength" of the program.

A brief review of changes in the Nova Scotia economy during the survey period may provide one more indication of the "importance" of the program. To the extent that economic measures show some change for the better while the incentives program was in effect, the ADA program may seem beneficial. It is not possible, however, to sort out causes of these changes: the period was one of exceptional prosperity and expansion for the entire Canadian economy and perhaps Nova Scotia would have participated in this in the absence of any special assistance. Furthermore, even while admitting that all positive changes may not be attributable to ADA, we must also note that some negative changes due to the program--the results of employment obsoleted or replaced by the emergence of new or improved firms--are neglected. In spite of these problems of measurement, it seems worthwhile to ask if the economy did move in accordance with the goals of the ADA program during the survey period. Tables 5.1 and 5.2 give a summary of changes in employment and income statistics for the period 1962-1967 for Canada and Nova Scotia.

Table 5.1 gives employment indices for employment in an industrial composite for Nova Scotia, the Atlantic Region and Canada and then separates out the same data for manufacturing alone. Overall employment in N. S. shows a slower growth than the Canadian data (the N. S. index value for employment change is 113.3 in 1967 as compared with a Canadian value of 122.6), a reflection of the slower rate of growth and the considerable out-migration in the period. For the manufacturing sector, the direct beneficiary of ADA assistance, employment in Nova Scotia grew at a slightly faster rate than in Canada as a

whole (N. S. index value of 123.2 compared to the Canadian value of 122.6) . Unemployment rates show some decline in Nova Scotia between 1963 and 1967 and the decline is greater than that for Canada. Unemployment at a normal rate of 5.6% in 1967 is still considerably higher than the Canadian rate of 4.1%, which indicates that this criteria for assistance still remains valid. Again, if the goal of the Program is to reduce unemployment, one can see this goal partially achieved (by whatever means) during the survey period.

Table 5.2 indicates some improvement in per capita Personal incomes in Nova Scotia relative to the data for Canada: a rise from 75.1% of the Canadian average in 1962 to 77.4% in 1967. The gap is still large, however, and the need for further assistance apparent. One reason for the lag is revealed in an examination of the average of wages and salaries. While wages and salaries have risen in Nova Scotia both for the manufacturing sector and for the industrial composite, they have in both cases failed to rise as fast as the Canadian average with the result that the Nova Scotian averages as a percent of the Canadian have slipped. In general, the goal of reducing the income lag in Nova Scotia had clearly not been achieved by 1967, but there is evidence of some progress.

The "Strength" of the ADA Program In Nova Scotia

The "strength" of the ADA program refers to the significance of the incentives assistance in the investment motivation of the ADA firms and the degree of stimulus set up for backward or forward linkage affects or second order plants. Since this involves qualitative

Income Statistics, Nova Scotia and Canada, 1962-1967

A. Average Weekly Wages and Salaries by Industry

Year	Industrial Composite			Manufacturing		
	Canada \$	Atlantic Region \$	Nova Scotia % of Canada	Canada \$	Atlantic Region \$	Nova Scotia % of Canada
1962	80.54	66.69	81.2	84.00	68.24	80.7
1963	83.27	69.31	81.7	86.90	69.83	80.0
1964	86.51	71.75	81.1	90.42	72.47	80.8
1965	91.01	75.09	80.7	94.78	75.85	80.2
1966	96.34	79.04	80.0	100.16	80.72	79.9
1967	102.76	85.00	80.4	106.53	85.55	78.8

Source: Review of Employment and Average Weekly Wages and Salaries, 1957-1967, D. B. S., Ottawa,
March 1969 (Pat. No. 72-002)

B. Personal Income Per Person

Year	Canada	Nova Scotia	N. S. as % of Canada
1962	\$ 1667	\$ 1252	% 75.1
1963	1740	1306	75.1
1964	1822	1379	75.7
1965	1988	1513	76.1
1966	2152	1614	75.0
1967	2313	1790	77.4

Table 5.3

Factors Influencing The Decision of The Firm
To Locate, Main Survey Firms

Factors	Ranking							
	Advantage				Disadvantage			
	Low	Medium	High	Total	Low	Medium	High	Total
Transportation	8	16	8	32	7	10	8	25
Availability of Raw Materials	4	12	26	42	6	8	5	19
Accessibility of Markets	7	22	21	50	9	4	5	18
Labour Conditions	14	22	14	50	5	4	1	10
Government incentives or cooperation	6	15	21	42	1	1	1	3
Plant Availability	7	19	11	37	3	--	--	3
Other:								
(i) Previous experience of production in this area	6	13	8	27	3	--	1	4
(ii) Special relationship with other firms in the area	5	12	8	25	1	--	2	3
(iii) Other	1	1	4	6	--	--	--	0
No answer	4							

judgements about the efficacy of the program and very little quantitative evidence the conclusions can only be tentative.

The interview firms were asked to indicate the influence of a number of factors on the decision of the firm to locate at that particular site. In each case the respondent was asked to rank the factors only if they were considered to have had some significant effect on the decision. The results are tabulated in Table 5.3. Availability of raw materials and accessibility to markets were most frequently mentioned as a high advantage influencing the choice and, with transportation, they were also the most frequently mentioned disadvantage. Labour conditions were mentioned as an advantage by 50 firms, and as a disadvantage by 10. All in all the "natural" conditions: raw materials, markets, labour and transportation appear to be the most important factors determining choice of locations. Government incentives or cooperation were described as an advantage by 42 of the 80 survey firms and as a disadvantage by only three. Most of the firms who received ADA assistance were among those responding to this question.

Of the forty-two firms who regarded government incentives or cooperation favourably, only 21 considered it of major importance in their decision, 15 considered it of medium significance and six of slight significance. Thirty-one firms considered the ADA program the most important of the forms of government assistance offered, but this number contains some firms who considered none of the government assistance to be a very significant factor influencing their decision.

When asked directly whether ADA had exercised an influence on their development plans, thirty firms answered affirmatively and

ten negatively. Five did not respond and it seems likely that they should be classified with the negative responses. Nineteen firms felt that ADA assistance had influenced their choice of site, while 25 felt the program had no effect. These responses have already been considered in Chapter II.¹

The first conclusion one can reach from examining these responses is that quite obviously the ADA program cannot take credit for all the results calculated in the discussion of the "importance" of the program. It is difficult to know the marginal influence of an incentive program on the investment decision, or to estimate the marginal development that resulted from the assistance. Since only thirty of the firms felt that ADA had influenced their development (i.e. 66.6% of responding ADA firms) and since some of these would have developed at a lesser rate in the absence of the assistance, it seems reasonable to assume that no more than 50-60% of the developments were in response to ADA incentives. This suggests that only one half to three fifths of the results recorded in the estimation of the "importance" of the program can reasonably be attributed to the Area Development Agency as a cause. This is probably a generous estimate of the "strength" of the program. The quality of the data available does not permit a more sophisticated analysis of the strength of the program at this time.

¹The 8 Additional Firms were all recipients of ADA assistance and 7 also received other forms of government assistance. Only two of these firms considered the ADA assistance as the most important government assistance received, and 5 felt their development would have taken place without it. Seven, however, said that ADA had influenced their choice of site.

A Critique of The Area Development Agency Program

The interviewers were asked to gather opinions and impressions regarding the ADA program and these are combined with our own observations to form an assessment of the quality of the program. We may dismiss at the beginning the unwarranted types of criticism which were not infrequent: complaints by applicants who obviously did not meet the criteria for assistance; complaints of slowness by applicants who were unwilling themselves to comply with the administrative requirements; and complaints and criticisms by those who were opposed to all forms of government intervention, particularly when it conferred benefits upon their competitors. This leaves three areas for consideration: the role of the program in an overall program of development, the administration of the program, and quality and applications of the criteria.

The ADA program cannot be faulted for its failures as a development program within its own terms of reference. It was primarily a welfare program aimed at improving income and employment levels in designated areas and this, to some extent, it accomplished. Nevertheless one may question whether these terms of reference were adequate and whether the goals of the program could not have been better achieved under others. There is no evidence for the suggestion of some that the program actually hindered development, in fact it undoubtedly was a clear assist to the region, but the benefits would also undoubtedly have been greater if the assistance had been designed to further the overall development needs of the whole province. The

encouragement of growth centres, the improvement of infrastructure and the rationalization obtainable through regional planning should permit a wiser use of available assistance and a more solid and viable economic growth. The changes proposed in the new Regional Development Incentives Act go far towards meeting this criticism of the old ADA program.

The administration of the program left much to be desired. Information regarding the terms and conditions for assistance was often unclear and frequently hard to get. A minimum suggestion for any such Agency would be that an abundant supply of brochures and information, written in clear Canadian English (or French) and in sufficient detail to provide a reasonable understanding of the program, be made readily available for anyone interested. Applicants objected, further, that it was frequently next to impossible to get in touch with an agent of the Agency for personal discussion and that letters frequently went unanswered for as long as six months. These objections were too frequent, and occasionally too vehement, to be dismissed as unwarranted. Delays in receipt of assistance which has been granted would also appear to be too long at times which may impose heavy financing charges on the firms involved. Where this is the result of administrative delay it is inexcusable, but in most cases it is likely the result of rigid performance criteria to be satisfied before payments are made.

The Criteria imposed for assistance were also subject to some criticism, and it is significant that many of these criticisms have been recognized in the provisions of the new Regional Development Incentives Act. The requirements that plants assisted be able to provide increased employment were sometimes too rigidly interpreted and sometimes too laxly. In some cases firms received assistance when only one new job resulted

from the expansion, in other cases firms were rejected when many existing jobs were at stake (from the inability to carry out modernization to meet competition) because they did not envision an increase in employment. In many cases assistance was automatically available to companies who met the specified requirements but which in no way needed or required the assistance. The provisions in the new act which allow for support for modernization expenses and give the Minister greater discretion in allocating aid to those who appear to actually need it may overcome some of these deficits. Several large firms also criticized the \$5 million limit for assistance saying that it made the incentives less important the larger the enterprise to be supported. The increase in the limit to \$12 million goes some way to meeting this criticism.

In general, though one hesitates to become too ebullient about a program which has yet to prove itself--particularly one where administrative discretion plays such a big role--, the provisions of the Regional Development Incentives Act appear to meet most of the negative criticisms of the old Area Development Agency and to preserve most of its virtues. One can hope that a moderately successful program will become a very successful one in the new circumstances.

APPENDIX A

STANDARD INDUSTRIAL CLASSIFICATION USED IN THIS REPORT

Major Group	Three- Digit Code	Title
01		<u>Food and Beverage Industries</u>
	103	Poultry Processors
	105	Dairy Factories
	107	Process Cheese Manufacturers
	111	Fish Products Industry
	112	Fruit and Vegetable Canners and Preservers
	123	Feed Manufacturers
	129	Bakeries
	139	Miscellaneous Food Industries
	141	Soft Drink Manufacturers
	143	Distilleries
	147	Wineries
03		<u>Rubber Industries</u>
	163	Tire and Tube Manufacturers
04		<u>Leather Industries</u>
	172	Leather Tanneries
	174	Shoe Factories
	179	Luggage, Handbag and Small Leather Goods Manufacturers
05		<u>Textile Industries</u>
	229	Miscellaneous Textile Industries
06		<u>Knitting Mills</u>
	239	Other Knitting Mills
07		<u>Clothing Industries</u>
	243	Men's Clothing Industry
	246	Fur Goods Industry
08		<u>Wood Industries</u>
	251	Sawmills
	254	Sash and Door Planing Mills
	259	Miscellaneous Wood Industries
09		<u>Furniture and Fixture Industries</u>
	266	Other Furniture Industries

Major Group	Three- Digit Code	Title
10		<u>Paper and Allied Industries</u>
	271	Pulp and Paper Mills
	273	Paper Box and Bag Manufacturers
	274	Other Paper Converters
11		<u>Printing Publishing and Allied Industries</u>
	286	Commercial Printing
	289	Printing and Publishing
12		<u>Primary Metal Industries</u>
	291	Iron and Steel Mills
	292	Steel Pipe and Tube Mills
13		<u>Metal Fabricating Industries (except Machinery and Transportation Equipment Industries</u>
	303	Ornamental and Architectural Metal Industry
	305	Wire and Wire Products Manufacturers
14		<u>Machinery Industries (except Electrical Machinery)</u>
	315	Miscellaneous Machinery and Equipment Manufacturers
15		<u>Transportation Equipment Industries</u>
	324	Truck Body and Trailer Manufacturers
	325	Motor Vehicle Parts and Accessories Manufacturers
	327	Shipbuilding and Repair
	328	Boatbuilding and Repair
	329	Miscellaneous Vehicle Manufacturers
16		<u>Electrical Products Industries</u>
	335	Communications Equipment Manufacturers
	339	
17		<u>Non-Metallic Mineral Products Industries</u>
	347	Concrete Products Manufacturers
	353	Stone Products Manufacturers
	357	Abrasives Manufacturers
19		<u>Chemical and Chemical Products Industries</u>
	372	Manufacturers of Mixed Fertilizers
	375	Paint and Varnish Manufacturers
	378	Manufacturers of Industrial Chemicals
	379	Other Chemical Industries

APPENDIX B

QUESTIONNAIRE: MAIN SURVEY FIRMS

All information given will be treated as confidential by the Area Development Agency and will be available for no purposes other than the present research project.

District: _____

Area Development Agency

Nova Scotia Impact Study

Interviewer _____ Date _____

Person Interviewed _____ Position _____

S.I.C. # _____ Principle Product _____

I. General Classification

A. Name of Firm _____

B. Location of Plant _____

C. Name of Parent Company
(if firm is branch/subsidiary) _____

D. Address of Parent Company Head Office
(if applicable) _____

E. In what year did the plant come into production at this site? _____

F. Fiscal Year Employed for Company Statements _____ to _____

G. Has this firm received assistance for establishment or extension of this plant from the Area Development Agency in form of:

Tax Incentives: Yes ☐ What year(s)? _____

No ☐

Capital Grants Yes ☐ What year(s)? _____

No ☐

II. Investment History

A. Indicate the nature of any alterations in plant since 1962, and the year in which commercial production in the altered plant commenced:

---completely new plant --- ☐
Year _____

---relocated plant--- ☐
Year _____

Past location _____

Change in maximum production capacity in the relocated plant amounts to _____% of maximum production in the former plant (in volume)

--expanded plant--

Year _____

☐

The expansion in terms of annual productive capacity amounts to _____% of the original maximum productive capacity (in volume)

--reconstructed plant on same site

Year _____

☐

Change in maximum Productive capacity in the reconstructed plant amounts to _____% of the original maximum production capacity (Volume)

--other (e.g. new equipment)

Year _____

☐

Supply details: _____

Change in Productive capacity (as above) _____

- B. Is the plant presently operating at planned capacity: Yes ☐
NO ☐

If answer "no", when do you expect production at planned capacity to start: _____

- C. What is the estimated replacement value (i.e. insured value of factory buildings at Dec. 31, 1967? Include associated offices and facilities, but exclude cost of land). \$ _____

What was this value at Dec. 31, 1962, or at last date before initial ADA assistance was received?

either: Dec. 31, 1962 \$ _____

OR Date _____, \$ _____

Are factory buildings: Company owned ☐ Rented ☐

Are major equipment items: Company owned ☐ Rented ☐

- D. What is the estimated replacement value of all plant and equipment as at Dec. 31, 1967? \$ _____

What was the replacement value of all plant and equipment either as at Dec. 31, 1962? _____

or, last year before initial receipt of ADA assistance:

Date: _____

Amount \$ _____

Yes ☐

No ☐[illegible]

III. Production: Outputs

A. What is the total dollar value of output produced in last complete financial year? \$ _____

B. Sales of Finished Products: Final Year

[illegible]

C. Sale of Part Processed Products: Final Year

Part Processed Product (List by items)	\$ Value of Sales in last complete financial year (or % of total sales)	Destination	
		Name of Purchaser	% of Total

D. What was the total value of output produced in the last complete financial year preceding the first receipt of aid from ADA (If no ADA assistance was received give figures for 1962).

Year _____
Value \$ _____

E. Sales of Finished Products: Beginning Year

Finished Products (List by item)	\$ Value of Sales in last year preceding ADA assistance (or 1962) (OR % of total sales)	Destination: % sold in			
		M. S.	Other Atlantic Prov.	Rest of Canada	U.S.
TOTAL					

IV. Production Inputs

A. Non-labour Inputs: Final Year

Inputs (other than Labour)	Name and Address of Supplier	\$ Value of Purchases in Last Complete Financial Year	or % of Total Purchases
a) Main Materials (Exclude Capital Equipment and Maintenance)			
b) Power and fuels			
TOTAL			

B. Non-Labour Inputs: Beginning Year. (Last Complete financial year before first receipt of ADA assistance, or 1962 if no assistance was received)

Inputs (Other than Labour)	Name and Address of Supplier	\$ Value of Purchases in last year before ADA assistance	or % of Total Purchases
a) Main Materials (exclude Capital, Equipment and Maintenance)			
b) Power and fuels			
TOTAL			

C. Estimate the total expenditure by this plant for materials, power and fuel for the year 1970: (use current dollars)

Main material \$ _____
 Power and Fuel \$ _____
 Total \$ _____

V. Employment and Wages

A. What was the monthly average of total employment at this plant site:

In 1967

Before ADA assistance
 (or 1962)

B. Wage Earners

Average Monthly employment
 at this plant site in 1967
 (or for months of operation
 in 1967)

Average monthly employment
 for the last year before
 ADA assisted alteration
 in the plant (or 1962 if
 no ADA assistance was
 received.)

1. Total Wage earners

Male

Female

2. Number receiving
 pay rates as:

skilled

Semi-skilled

unskilled

3. Number (or %) of
 wage earners
 recruited:

Locally

Other parts of
 N.S.

Outside N.S.

C. Salaried Staff

Average Monthly Employment
 at this site in 1967 (or
 for months in operation in
 1967)

Average Monthly Employment
 for the last year before
 ADA assisted alteration
 in the plant (or 1962 if
 no assistance was received)

Total salaried staff

Male

Female

D. Was the plant operating at full capacity in the last year before the ADA assisted alteration (or 1962 if no ADA assistance was received) Yes ☐ No ☐

If no, what % of capacity was attained

☐

E. What do you estimate total employment in this plant will be in 1970 ☐

F. Is there a seasonal peak in your employments needs at present?

Yes ☐

No ☐

If yes, specify:

Peak Months

J F M A M J J A S O N D

Slack Months

J F M A M J J A S O N D

G. Since your ADA assisted expansion (or since 1962 if no ADA assistance was received) has the seasonal variation in your employment needs: Increased ☐

Decreased ☐

Remained about the same ☐

H. Are you having difficulty in recruiting local labour?

Yes ☐

No ☐

If yes, why:

I. Has it been necessary to bring in "key" personnel from outside the province? Yes ☐ No ☐

What percentage of these (if any) have you replaced with local labour since 1962? ☐

J. Wages and Salaries

What was the total expenditure on all wages and salaries at this plant:- for the year 1967 \$

for the last year before ADA

assisted alteration (or 1962

if no assistance was received) \$

K. Have wages and salaries in this plant increased for equivalent services since the year before ADA assistance was received, (or since 1962 if no assistance was received): Yes ☐

No ☐

Estimate the percentage increase for this period in:

Wages

%

Salaries

%

Comment on wage & salary changes, if you feel amplification is required:

VI Investment Incentives

- A. During the period from the end of 1962 to the end of 1967, did the firm receive financial assistance to assist or encourage investment in this plant, (including any assistance in the provision of external investments directly linked to the plant's operation) from any of the following sources:

Area Development Agency	<input type="checkbox"/>	
Atlantic Development Board	<input type="checkbox"/>	Identify or Comment
Other Federal Sources	<input type="checkbox"/>	→ _____
Industrial Estates Ltd.	<input type="checkbox"/>	_____
Other Provincial Govt. Sources	<input type="checkbox"/>	→ _____
Municipal Govt. Sources	<input type="checkbox"/>	_____
Other Govt. Agencies	<input type="checkbox"/>	→ _____

- B. Rank the agencies above in the order of the importance of their financial assistance for your investment decisions during this period: (Assign 1 to the highest ranked, 2 to the next, etc.)

ADA	<input type="checkbox"/>
ADB	<input type="checkbox"/>
Other Federal	<input type="checkbox"/>
Industrial Estates	<input type="checkbox"/>
Other Provincial	<input type="checkbox"/>
Municipal	<input type="checkbox"/>
Other Government	<input type="checkbox"/>

- C. Estimate the proportion of the total capital investment in this plant in the period 1962-1967 which was provided by private (non-government) sources %

Private sources in the Province %

Private sources outside the province %

- D. Estimate the proportion of total capital needs of this plant in the period 1962-1967 which have been met through the assistance of the Area Development Agency?

%

- E. Which of the various services, if any, offered by ADA did you utilize?

- F. (i) Did the availability of ADA incentives influence the decision to locate this plant at its present site? Yes _____, No _____. If the answer is yes, was the influence of ADA's program on the location decision: (a) STRONG _____, (b) MODERATE _____, or (c) MINOR _____?

(ii) Assuming the ADA Incentive Program had not existed at the time when the development of this plant was under consideration--would the above described development have taken place at all? Yes _____, No _____. If the answer is yes, would the plant have been located at the present site? Yes, _____, No _____. If the answer is no, then, where approximately would it have been located?, and why? (Please comment): _____

Further had the assistance not been forthcoming would this have affected the size, and, or the character of this development in any significant way? (Please comment) _____

- (iii) Did the assistance received from ADA enable this plant to reach a more profitable level of production? Yes _____, No _____
(comments) _____

(iv) Did the assistance received from ADA enable this plant to improve its competitive position vis-a-vis its strongest competitors? Yes _____, No _____. If answer is yes, please describe the nature of the improvement _____

(v) Does this company feel that the ADA-grant-formula is adequate, given the present and near future cost and general production patterns? (Please comment) _____

VII Location Factors

- A. Is the respondent one of the company personnel involved in location decisions?

Yes ☐
No ☐

What qualities do you consider to be of greatest importance in choosing locations for new company plants? Please list in order of importance.

- (i) _____
(ii) _____
(iii) _____
(iv) _____
(v) _____

B. Does the company procure the services of any agency in making location decisions? Give details

- (1) Government agencies

Federal _____
Provincial _____
Local _____

- (11) Private Agencies

C. Indicate the influence of the following factors on the decision of the firm to locate their plant at this site:

[illegible]

Linkage Firms

Interviewer _____ Date _____

Person Interviewed	Position
--------------------	----------

S.I.C. #	Principal Product
20	Food and kindred products
21	Food and kindred products
22	Food and kindred products
23	Food and kindred products
24	Food and kindred products
25	Food and kindred products
26	Food and kindred products
27	Food and kindred products
28	Food and kindred products
29	Food and kindred products
30	Food and kindred products
31	Food and kindred products
32	Food and kindred products
33	Food and kindred products
34	Food and kindred products
35	Food and kindred products
36	Food and kindred products
37	Food and kindred products
38	Food and kindred products
39	Food and kindred products
40	Food and kindred products
41	Food and kindred products
42	Food and kindred products
43	Food and kindred products
44	Food and kindred products
45	Food and kindred products
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89	Food and kindred products
90	Food and kindred products
91	Food and kindred products
92	Food and kindred products
93	Food and kindred products
94	Food and kindred products
95	Food and kindred products
96	Food and kindred products
97	Food and kindred products
98	Food and kindred products
99	Food and kindred products

A. Name of Firm

B. Location of Plant

C. Name of Parent Company

(if firm is branch or subsidiary)

D. Address of Parent Company Head Office

E. In what year did plant come into production at this site?

F. Fiscal Year Employed for Company Statements; _____ to _____

A. For your business year 1967, give:

Total dollar value of all output produced: \$

Total dollar value of all sales: \$

B. Firm indicating purchases in 1967: _____

Products Purchased	\$ Value of purchases	\$ Value of all output of the product	Price per unit

C. For the year 1967, what percent of the total sales of this (these) product(s) went to: all firms in N.S. _____

all firms in the Atlantic Provinces _____

all firms in Canada _____

all firms in the U.S. _____

other _____

D. For the year preceding alterations in the productive capacity of _____, that is, _____, give: the total dollar value of all output: \$ _____
the total dollar value of all sales: \$ _____

Products Purchased	\$ Value of Purchases	\$ Value of all output of this Product	Price per unit

E. For the year _____ what % of total sales of this product went to: all firms in N.S.: _____
all firms in Atlantic Provinces: _____
all firms in Canada: _____
all firms in U.S. _____
Other: _____

III Investment Decision

A. Given your existing plant and equipment, what is the minimum value of total sales you must achieve to continue operations (i.e. breakeven point): \$ _____

B. If the plant produces more than one product, what is the minimum value of sales of the product _____ necessary to continue its production in your plant? \$ _____ Comments: _____

C. What is the smallest total value of sales of the product(s) you produce at which a plant might be expected to reach a breakeven point: \$ _____
What would be the minimum value of sales of _____ necessary to make its production worthwhile in such a plant: \$ _____?

D. Do you foresee this firm (_____) as a major purchaser of your outputs in the future: YES ☐
NO ☐

Comment _____

E. In the next ten years where do you expect your sales to show the greatest increase (rank in order 1, 2, 3, 4, 5, or cross out if of no importance)

Nova Scotia	_____
Other Atlantic Provinces	_____
Rest of Canada	_____
U.S.	_____
Other	_____

Comment: _____

F. Has the establishment of this plant (_____) led you to carry out or to plan in the near future an expansion of your own plant: Yes ☐ No ☐ . If so what do you anticipate the cost (plant and equipment) of the expansion will be _____?

G. Have you applied, or do you expect to apply, for assistance from the Area Development Agency for this expansion: Yes ☐ No ☐

H. Since 1963 there have been _____ new plants and _____ expansions in your area. Has this growth been an important stimulus to an increase in the quantity of and quality of business services provided locally. (e.g. management advisory services, better repair facilities, faster and more efficient local trucking etc. Comment: _____

IV Employment and Wages

A. What was the monthly average of total employment at this plant site:
In 1967 _____

In _____

B. Wage Earners

	Average Monthly Employment at this plant site in 1967 (or for months of operation in 1967)	Average Monthly employment at this plant
1. Total Wage Earners	<input type="text"/>	<input type="text"/>
Male	<input type="text"/>	<input type="text"/>
Female	<input type="text"/>	<input type="text"/>
2. Number receiving pay rates as:		
skilled	<input type="text"/>	<input type="text"/>
Semi-skilled	<input type="text"/>	<input type="text"/>
Unskilled	<input type="text"/>	<input type="text"/>
3. Number (or %) of wage earners recruited:		
Locally	<input type="text"/>	<input type="text"/>
Other parts of N.S.	<input type="text"/>	<input type="text"/>
Outside N.S.	<input type="text"/>	<input type="text"/>

C. Salaried Staff

	Average Monthly Employment at this site in 1967 (or for months in operation in 1967)	Average Monthly employment at this site in:
Total salaried staff	<input type="text"/>	<input type="text"/>
Male	<input type="text"/>	<input type="text"/>
Female	<input type="text"/>	<input type="text"/>

D. Was the plant operating at full capacity?

Yes

No

If no, what % of capacity was attained

E. Is there a seasonal peak in your employments needs at present?

Yes

No

If yes, specify: Peak Months

Slack Months

J	F	M	A	M	J	J	A	S	O	N	D
J	F	M	A	M	J	J	A	S	O	N	D

F. Since this has the seasonal variation in your employment needs:

Increased

Decreased

Remained about the same

G. Wages and Salaries

What was the total expenditure on all wages and salaries at this
plant:- for the year 1967 \$ _____
for the year _____ \$ _____

H. Have wages and salaries in this plant increased for equivalent services
since _____?

Yes

☐

No

☐

Estimate the percentage increase for this period in:

Wages

%

Salaries

%

Comment on wage and salary changes, if you feel amplification is required:
